



Downtown San Diego

complete community | mobility

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Introduction

On May 15, 2007, to settle litigation over the City of San Diego's Downtown Community Plan, a final agreement was entered into between Save Our Forest and Ranchlands (SOFAR) and the City of San Diego, Centre City Development Corporation (CCDC), the Redevelopment Agency, and the San Diego City Council.

A condition of the final agreement is a requirement that CCDC hire a transit consulting firm to prepare a transit-oriented alternative study designed to augment implementation of the Downtown Community Plan should the governing agencies decide to adopt any or all of the study's recommendations. It was agreed that the study be conducted as a "program-level" exploration of transit opportunities and that an Environmental Impact Report (EIR) be conducted to analyze potential impacts.

CCDC retained a consulting team led by McCormick Rankin US Inc. from Ottawa, Canada to complete the Downtown Transit-Oriented Alternative Study. A major finding of the study is that a bold new approach is needed for the downtown, along with a change in priorities and an incremental implementation plan. The key elements of the approach include establishing a transit ridership target of 48 percent for all trips coming into downtown during the morning commute, and reprioritizing how different ways of traveling are treated, giving highest priority to pedestrians and then, in order of priority, cycling, transit and the automobile.

Once the EIR is complete, the settlement agreement includes public participation in a series of presentations before the Centre City Advisory Committee, CCDC Board of Directors, the San Diego Planning Commission and the San Diego City Council.

Overview of Study Process

The McCormick Rankin team brought together an international group of transport specialists from the United States, Canada, Australia and the United Kingdom who have successfully advised and transformed communities around the world. This report, and the supporting companion documentation, are the product of their insight and expertise applied to the challenges facing downtown San Diego.

The team, known collectively as the "International Transit Think Team," convened for two workshops in San Diego, held in January and March 2008. The first workshop focused on understanding the unique challenges that San Diego faces and brainstorming initial ideas to consider. The second workshop built from a best-practice review and detailed analysis of transit options to formulate a transit strategy that became the public review draft.

Introduction

In June 2008, a weeklong consultation tour was undertaken to present the public review draft to a wide range of stakeholders both downtown and across the wider region. These stakeholders included SOFAR; Metropolitan Transit System (MTS); the CCDC Real Estate Sub-Committee; the City of San Diego Planning Department; the Downtown Partnership; Move San Diego; Caltrans; the San Diego Economic Development Corporation (EDC); San Diego Association of Governments (SANDAG) and Councilmember Kevin Faulconer.

Major comments expressed by multiple stakeholders included the following:

- Growth in the downtown cannot be accommodated by major increases in road-carrying capacity and a different approach is needed.
- General support for the overall direction of **complete community | complete mobility**.
- It was recognized that the downtown is important to the regional economy and that a downtown mobility solution must take into account the regional context and vice versa.
- Governance issues will need to be addressed to implement the plan, both in terms of institutional arrangements and in aligning concurrent and complementary work programs.
- The plan will require an investment strategy and investment should be prioritized to meet economic, social, and environmental planning objectives for the downtown and the region. The idea of undertaking a “policy audit”, as described in **complete community | complete mobility**, received strong support as a method of rethinking priorities and as a way to work through some of the governance issues identified.
- Quick wins should be identified to give the plan momentum.
- The plan should be bold and visionary in order to drive implementation and attract investment. It will need an incremental implementation plan.
- Individual and institutional champions need to be identified to move the plan forward.

Components of This Report

This report comprises two separate but closely linked documents. The first is entitled **complete community | complete mobility** and represents an overview of findings and recommendations. The second is entitled Supporting Materials and, unlike traditional appendices that provide greater detail, these appendices will in many instances contain essential elements of the findings and recommendations not necessarily found in the overview. We recommend that both documents be reviewed in their entirety.

The **complete community | complete mobility** report includes the following chapters:

- Key Messages
- Building a Distinctive World-Class Downtown
- Getting the Vision Right
- Moving to Complete Mobility
- Complete Community
- Making it Real — How Do We Start?
- Conclusions.

The Supporting Materials report is a compilation of narrative, case studies, presentations and reports that illustrate both the process which was followed and the technical basis for the findings and recommendations. The compilation consists of the following elements:

- Appendix A – Case Study Assessment
- Appendix B – San Diego Background Review
- Appendix C – Workshop #1 Summary Report
 - Development and Evaluation of Alternatives
- Appendix D – Workshop #2 Summary Report
 - Development of Three Alternative Strategy Packages
 - Evaluation of Selected Alternative Strategy Package
- Appendix E – Potential Funding Approaches
- Appendix F – Phasing of Downtown Development.

Following is a brief overview of the appendices found in the Supporting Materials. A more thorough narrative accompanies the appendices on pages 1 through 5 of that document.

Appendix A – Case Study Assessment

The purpose of the case study assessment was to glean the lessons learned from other jurisdictions and organizations within the United States and internationally. The intent was to gain insight into how other cities have transitioned their downtowns from being predominantly auto-oriented to being more balanced in quality of life terms and mobility options. The cities reviewed either have managed a transition similar to that contemplated by San Diego, or are in some way comparable and have policies or strategies in place that support transit and may be applicable to San Diego. A total of 15 cities were examined including Bordeaux, France; Brisbane, Australia; Portland, Oregon; and Vancouver, Canada.

Appendix B – Background Documentation Review

This document summarizes the existing background information that was reviewed in support of the study. Information was obtained from several sources, including San Diego's regional planning agency (part of SANDAG) and CCDC. Previous transit and transportation studies, as well as information related to downtown development and growth projections, were assembled. Also included was information about population and employment growth, commuter travel patterns, existing conditions and demand for pedestrian, cycling, and parking facilities. Data provided by SANDAG was incorporated into a travel-demand forecasting model to identify trends and issues related to transportation in and around downtown San Diego.

Appendix C – Workshop #1 Summary Report

Development and Evaluation of Alternatives

This report documents the January 2008 workshop during which the international consulting team members were brought to a common understanding of issues in downtown San Diego and initial alternatives and ideas for consideration were developed. This included opportunities for improvement in downtown pedestrian, cycling, transit and parking facilities and services. The workshop included a tour of downtown San Diego as well as key transit facilities to familiarize the team with the study area. The team was joined by various planning and engineering staff from CCDC, City of San Diego and local transit agency MTS, providing further input into San Diego's existing conditions.

Prior to the workshop, a brief overview of issues and opportunities in downtown San Diego was prepared for pedestrian, cycling and parking facilities. It contained an "Ideas Bank" of possible transit-supportive opportunities for parking, cyclists and pedestrians, that San Diego might consider, or options that San Diego is employing, but which could be expanded further to address the issue identified.

Appendix D – Workshop #2 Summary Report

Development of Three Alternative Strategy Packages and Evaluation of Selected Alternative Strategy Packages

Appendix D describes the development, testing and evaluation of three alternative mobility strategies, including (1) building your way out of it; (2) limiting your economic potential, and (3) implementing balanced, sustainable growth — complete mobility.

The implications of each of the three strategies were discussed during the March 2008 workshop held in San Diego. Workshop activities are summarized in this appendix, along with a detailed discussion of the evolution and issues surrounding the three strategies, including the modeling assumptions and outputs.

Preferred Downtown Transit Alternative Plan

The preferred downtown transit alternative (implement balanced, sustainable growth — complete mobility) became **complete community | complete mobility**. All of the background material described in the previous sections

supports this document, as does a report addressing potential funding approaches that is provided in Appendix E of the Supporting Materials.

Appendix E – Potential Funding Approaches

This document outlines the range of possible options to fund a downtown strategy. It includes a review of existing transit and transportation funding available at the local, state and federal levels, and considers taxation sources, land-value capture and supplementary revenue sources.

Appendix F – Phasing of Downtown Development

This report investigates best-practices related to growth and development phasing programs. It examines policies and regulations that have been adopted in other cities and discusses their applicability to San Diego. A specific intent was identifying how the level of development within a downtown area could be managed in concert with the available capacity and operations of the transportation network.

Key Messages

San Diego is embarking on a new era of growth and revitalization of its downtown core. In 2006, the Downtown Community Plan set forth a bold new vision for downtown along with guiding principles for achieving this vision. The plan envisions a multiuse regional center with strong employment and residential components and the full complement of amenities that a vibrant downtown requires. It foresees significant development intensities in the downtown core, and population and employment increases.

The Downtown Community Plan assumes that downtown will be able to handle the steep rise in the number of vehicles on the roads that will accompany these increases. But growth in auto travel cannot be accommodated without compromising the key assets that make downtown a unique and attractive place for people and business.

Our analysis of the Downtown Community Plan reveals that in the absence of significant transit improvements, major road capacity increases would be required on the edges of downtown. Significant new road capacity cannot be added without creating enormous social, economic and environmental impacts on the areas fringing downtown. Without feasible options for road expansion or significant improvements in other mobility options, the existing road capacity will limit the amount of new development that can take place downtown and will dampen the economic vitality that new growth can bring.

At the same time, California State is targeting a 25 percent reduction in greenhouse gas (GHG) emissions by the year 2020. Downtown San Diego and related transportation issues in the city and region are important in achieving this target. Transportation is responsible for 41 percent of the state's GHG emissions, compared with 33 percent nationally. A bold transportation strategy will be needed to achieve these targets in the face of growing demand for mobility.

Our team considered three possible futures for downtown San Diego:

1. **Building your way out of it:** Implement the automobile-centric recommendations and mitigations of the current Downtown Community Plan. Accept the adverse impacts of major new road capacity in downtown and the economic implications of a largely auto-dominated downtown environment.
2. **Limiting your economic potential:** Adopt a low-growth strategy, add no new road capacity and make minor improvements to the existing transit service in compliance with SANDAG's Regional Transportation Plan (RTP).

San Diego has a strong vision for its downtown and is embarking on a new era of growth and revitalization of the downtown core.

The large rise in auto travel assumed by the Downtown Community Plan cannot be accommodated without compromising the key assets that make the downtown a unique and attractive place for people and business.

Bold action is needed to meet California climate change targets, to maintain our quality of life, and to support our economy.

Key Messages

With this option, very high congestion levels would exist on the downtown periphery and this would effectively limit the amount of growth that could occur. Growth (residential and employment) could be 30 to 40 percent less than was proposed in the Downtown Community Plan.

3. **Implementing balanced, sustainable growth - complete mobility:**

Recognize that the economic, land-use and quality-of-life goals of the Downtown Community Plan can best be realized by developing a balanced transportation system, achieved through an increased emphasis on walking, cycling and transit.

The Seven Deadly Wins

1. The city is a place of exchange.
2. Transport is about people and goods, not vehicles.
3. The city is a place to enjoy.
4. The city is a place of chairs.
5. The city is a place of movement and connectivity.
6. The city is defined by its arrival points.
7. The city is a complex, dynamic system of interactions.

The Downtown Community Plan contains the vision and key principles to shape a sustainable solution for downtown. The future challenge is to find a matching transportation solution that will lock in these principles. In a **complete community | complete mobility** strategy, translating these principles into reality is built on seven “deadly” wins that can reshape the way people think about downtown and rebalance priorities.

A more balanced, effective and sustainable solution is required and can be achieved. A **complete community | complete mobility** strategy, proposed for downtown San Diego, is about quality, choices and balance, and a transportation system that contributes to the community’s objectives and those laid out in the Downtown Community Plan.

Complete community is a place that people enjoy; it is a place that feels comfortable and offers people a range of attractive services. A balanced downtown recognizes that the space given to people is what makes it work. Space is also dedicated to the movement of people and goods. People space and movement space are often in competition, and it is the balance between the two that many cities get wrong. In a world-class downtown, people feel comfortable living or visiting and they have many options for moving from place to place.

Complete mobility is, in part, about a better balance among walking, cycling, transit and the automobile. It requires forward-thinking changes in transportation policy to match the vision contained in the Downtown Community Plan. It means that new road and parking capacity should occur only within the context of a strong commitment to measurable objectives for transit improvements. Additionally, the same strong commitment should be made to improve the walking and cycling environment, both to support transit and improve the overall quality of life in the city.

The feasibility of such a strategy was tested in our study, in which we used a representative set of transit improvements and assumptions about road capacity. The analysis demonstrated that a complete mobility transportation strategy for downtown San Diego can work. Expensive and disruptive grade separation of transit (e.g., tunnels) will not be necessary as long as high-quality bus and light rail services are provided with high frequencies and routing is reorganized to meet the needs of commuters as well as people traveling through downtown.

A more balanced, effective and sustainable solution is required and can be achieved.

The key elements of a complete mobility strategy are as follows:

- Make a strong political, financial and institutional commitment to transit improvements to achieve the level of transit use required to make downtown work.
- Undertake further road and parking expansion only in the context of a strong commitment to measurable objectives for transit improvements.
- Prioritize downtown modes in the following order: walking, cycling, transit and automobiles.
- Reorient transportation investment to meet the wider objectives of community plans.
- Establish and monitor transit-use targets in key corridors.
- Develop corridor-level programs to support corridor transit-use targets, including transit oriented development initiatives to fill existing housing stock vacancies, and improve the quality of the transit customer experience.
- Undertake actions to better orient the function of the internal downtown road system to people rather than vehicle movement.

Turning these key elements into reality will take the following actions:

1. Develop a detailed complete mobility strategy.
2. Reorient transportation investment to objectives of the Downtown Community Plan through completing a policy and project audit.
3. Link complete mobility to development.
4. Find the money.
5. Integrate **complete community | complete mobility** opportunities into Downtown Community Plan implementation.
6. Explore new governance models.
7. Identify quick wins.
8. Evaluate specific project features

We have shown that a **complete community | complete mobility** solution for downtown is feasible and affordable, but it requires decisive action. Making it real involves realigning government actions and policies and rethinking investment priorities. A bold new vision already has been established for downtown. Implementation must be incremental; making the vision a reality will take strong commitment and setting investment priorities that embrace the principles of **complete community | complete mobility**.

“Go forth, with spirit,
the civic vision, and
the courage to build
the city of your
dreams” -Alonzo E. Horton

Building a Distinctive World-Class Downtown

San Diego is embarking on a new era of growth and revitalization of its downtown core. In 2006, the Downtown Community Plan set forth a bold new vision for downtown along with guiding principles for achieving this vision. The plan envisions a multiuse regional center with strong employment and residential components and the full complement of amenities that a vibrant downtown requires. It foresees significant development intensities in the downtown core as well as population and employment increases.

The Downtown Community Plan assumes that downtown will be able to handle the steep rise in the number of vehicles on the existing and expanded road network that will accompany these increases. But growth in auto travel cannot be accommodated without compromising the key assets that make downtown a unique and attractive place for people and business. A more balanced, effective and sustainable solution is required and can be achieved. Transit will be an important part of this solution, and not simply for delivering people to where they want to go or for providing essential services. Transit can make downtown's

“Downtown San Diego is evolving into one of the most exciting urban districts anywhere. Poised between sparkling San Diego Bay and Balboa Park—the largest cultural park in the country—and bestowed with a balmy Mediterranean climate, downtown is ideally positioned as the center of regional economic, residential, and cultural activity, and as a center of influence on the Pacific Rim.”

San Diego Downtown Community Plan – April 2006

Building a Distinctive World Class Downtown

economic ambitions achievable by meeting the increasing mobility requirements that success and growth will demand while maintaining the high quality of life which people and businesses have come to expect in San Diego.

The scale of the Downtown Community Plan and the dynamic mix of land use warrant a unique transportation solution. This document presents a **complete community | complete mobility** solution for downtown that will achieve the vision and objectives of the Downtown Community Plan. Complete mobility will provide a balanced transportation system that will be a critical element in creating a sustainable, economically dynamic, vibrant and distinctive downtown.

One of the Downtown Community Plan principles is to create a distinctive world class downtown.

A successful downtown comprises two essential elements—it must be a balanced place and it must have high-quality arrival points.

What Makes for a World-Class Downtown?

The image and heart of any city is its downtown area. Downtown is what visitors picture when thinking about the city; it is generally the arrival point and the destination. A successful, vibrant downtown can act as a catalyst for the economic, cultural and social well-being of the whole region.

A balanced place is a place people enjoy; it is a place that feels comfortable and offers a range of attractive services for its people. A balanced downtown recognizes that the space given to people is what makes it work. Space is also dedicated to the movement of people and goods. People space and movement space are often in competition, and many cities fail to achieve balance between the two. In a world-class downtown, people feel comfortable living or visiting and they have many options for moving from place to place.

Arrival points set the image of a city within a matter of minutes and that image, good or bad, is hard to shift once established. The experience at the rail, bus, air and sea terminals says a lot about the city; it sends a powerful message which can be positive or negative, planned or the result of unintended consequences. A world-class downtown has readily identifiable, comfortable, attractive arrival points that lead the traveler into the city.

What Is the Competition Doing?

Cities like Vancouver, Canada; Brisbane, Australia; Bordeaux, France; and Portland, Oregon have successfully transformed downtowns into high-quality people places that are economically vibrant. Innovative transportation solutions and changing the way people think about mobility have been key factors in these successes. There is a combination of leadership and a willingness to change direction with sustainable, balanced strategies that use transportation as a means to shape the future of the city, the economy, and quality of life (see Supporting Materials, pp. A6 to A38).

These cities also recognize that downtown issues differ from the rest of the region and a regional transportation strategy does not necessarily address specific downtown needs. A tailored, but complementary, strategy is needed.



Vancouver BC, False Creek

Some key success factors employed by these cities are discussed in subsequent paragraphs.

Leadership and vision

Successful cities have a clear vision of what the cities are meant to be and have acted on this vision by demonstrating a willingness to change through strong political and institutional leadership.

Investing in quality of life and prosperity

Successful cities recognize transportation’s role in driving the economy—where investment in transportation is not just about reducing congestion, but considers the connectivity needs of business—as well as transportation’s role in enhancing the urban realm and quality of life. Excellent transportation options and a high quality of life are essential for competing in a modern economy and for attracting high-value jobs, as well as for expanding the effective size of the labor market, not just in the city, but in the region as a whole.

Complete communities

Successful cities have vibrant downtowns that shape the image of the region. They are active at all times of the day. A diverse range of people live and work in the downtown and they enjoy access to a full range of social, cultural and community services, schools and recreation.

Complete mobility

Successful cities strive for a balanced transportation system and have a full set of travel options for the public. To achieve this, conscious decisions have been made to reallocate downtown road space to provide greater emphasis on sustainable modes and greater opportunity for quality urban spaces.

Responding to Sustainability and Climate Change

Rebalancing for a sustainable downtown

The “triangle for success” of world-class cities recognizes the fundamental contribution that quality of life and the environment make to a modern competitive economy and to each other. Successful world-class cities balance these factors which are, at their essence, the principles of sustainability.

The climate change imperative

Climate change has the potential to have serious impacts on California. The state faces several risks, including a reduction in water supply, increased air pollution due to higher temperatures, increases in wildfires, damage to the coastline, and economic losses by higher food, water, energy and insurance prices. Because of its location, San Diego is particularly sensitive to climatic impacts such as changes in the global sea level and coastal erosion. It’s also vulnerable to extreme weather events, including heat waves and drought.

The state is targeting a 25 percent reduction in greenhouse gas emissions by 2020, which would bring back emissions to 1990 levels. The downtown and

Successful cities recognize transportation’s role in driving the economy...excellent transportation options and a high quality of life are essential for competing in a modern economy and for attracting high value jobs.

“Continued underinvestment and business-as-usual transportation policies and programs will have a detrimental impact on the ability of the United States to compete in the world economy.”

The Transportation Challenge: Moving the US Economy—U.S. Chamber of Commerce



What is downtown's role in greenhouse gas emission targets? The statewide target for greenhouse gas emissions is for a 25 percent reduction by 2020; meanwhile, downtown growth is expected to result in more than double the downtown trips.



Downtown San Diego currently has more than 75,000 jobs and is expected to have 165,000 jobs by 2030.

transportation issues in the city as a whole are important in achieving this target. Transportation is responsible for 41 percent of the state's GHG emissions, compared with 33 percent nationally, and is one of the fastest growing sources of greenhouse gas emissions in the United States. A bold transportation strategy will be needed to achieve these targets in the face of growing demand for mobility. Public transit is widely regarded as a primary tool in meeting GHG reduction targets because it can maintain the mobility of the population while significantly lowering emissions.

The Good News

Downtown is the anchor for the region, a destination, and has unique assets

The downtown remains unique among regional centers and is the cultural, civic, historic and economic heart of the region. It enjoys a distinctive setting, bracketed by San Diego Bay to the west and Balboa Park to the east. Downtown is a destination for shopping, leisure activities and tourism. It is where many key regional attractions are located and boasts the region's largest concentration of hotels. It has the potential to become a high-end retail center, differentiating itself from what is available elsewhere in the region.

Downtown is the heart of the financial sector, the government sector and associated legal services. It is the dominant employment area in a region with a dispersed employment base and multiple centers. Currently there are more than 75,000 jobs downtown and this is expected to grow to 165,000 jobs by 2030.

A complete community is evolving

Build-out of the Downtown Community Plan will give people more choices in where they live and work. People are beginning to return to live downtown; this must be sustained by providing the services that are needed for a diverse, complete community, including cultural options, community services, schools and recreation.

Vision and direction to continue the downtown renaissance

The Downtown Community Plan provides a vision and direction for continuing the renaissance of San Diego's city center so that it becomes a truly distinctive, world-class downtown.

The Bad News

From a transport standpoint, business as usual will not fulfill the vision

The success of the Downtown Community Plan is predicated on accommodating a significant increase in auto volumes that cannot be achieved without eroding the key assets that make the downtown a unique and attractive place for business and people. Our analysis of the Downtown Community Plan, as described in a subsequent section, Moving to Complete Mobility (see also Supporting Materials, pp. D42 to D56), reveals that, in the absence of significant transit improvements, major road capacity increases would be required on the edges of downtown. Significant new road capacity cannot be added without creating enormous

environmental and social impacts on the areas fringing downtown. The current direction will not contribute to achieving greenhouse gas emission reduction targets. A more effective and sustainable solution is required if the objectives of the plan are to be met.

Getting the Vision Right

Locking in the Good News

The Downtown Community Plan contains the vision and key principles that can shape a sustainable solution for downtown. The challenge in the future will be to find a matching transportation solution that will lock in these principles.

Key Wins to Make the Vision a Reality

Translating these principles into reality should be built on seven key wins that can reshape the way we think about downtown and rebalance our priorities. These wins have been developed out of our research and experience in developing downtowns in cities all over the world. Although every city is unique, we have found that successful cities share a set of common principles, and these are the very principles we are applying to San Diego's downtown. We call them the "seven deadly wins" (see Supporting Materials, pp. D6 to D23).

Seven Deadly Wins

1. The city is a place of exchange.
2. Transport is about people and goods, not vehicles.
3. The city is a place to enjoy.
4. The city is a place of chairs.
5. The city is a place of movement and connectivity.
6. The city is defined by its arrival points.
7. The city is a complex, dynamic system of interactions.

Win 1: The City Is a Place of Exchange

Cities are primarily people spaces, places of exchange in terms of business, thought, culture and recreation. People space is the high-value space in a city where people interact every day—where transactions occur, where money is spent, where friends meet to shop and talk. It is the most important space that a city has and it drives the economy of the city.

What typically takes away from people space is movement space. People and goods must get from one place to another and they do so through movement space. Movement space is high-cost space because it takes up valuable real

Downtown Plan Principles:

1. A distinctive world-class downtown, reflecting San Diego's unique setting.
2. The center of the region.
3. Intense yet always livable, with a substantial and diverse downtown population.
4. A nucleus of economic activity.
5. A collection of unique, diverse neighborhoods with a full complement of uses.
6. A celebration of San Diego's climate and waterfront location.
7. A place connected to its context and to San Diego Bay.
8. A memorable, diverse and complex place.

Getting the Vision Right



Maximizing productivity of movement space
Toronto, Canada

“People tend to sit when there are chairs”

-William White

estate, requires expensive infrastructure, represents low productivity and has environmental and health costs.

Most of the high costs associated with movement space relate to parking, because parking adds real cost to downtown development and affects downtown’s competitiveness relative to regional centers. The cost of movement space has real implications for quality of life, as the amount of disposable income devoted to transportation is directly related to its cost.

Unfortunately, high-cost space takes away from high-value people space. This means, the very space you want to preserve for people to use and spend money in is being taken over by movement space. This can reduce the economic potential of the downtown area. The key is to maximize people space and minimize movement space.

Win 2: Transportation Is about People and Goods, not Vehicles

Transportation is about enabling people to do what they need to do when they need to do it—and space in the city needs to be allocated for this movement. This space has a finite capacity and is expensive to provide. It reduces people space, the very space that makes the economy of the city work. The key is to maximize the productivity of movement space. Successful cities have done this by balancing private and public transportation and emphasizing walking and cycling.

Win 3: The City Is a Place to Enjoy

Because the city is a place of exchange, it is important that people are comfortable and they want to stay and, consequently, spend money as a result of their experience in this space.

A city that is designed and built for local people to enjoy also will be enjoyed by visitors. People like to be in comfortable places and they do not have to be urban designers to know whether a space is comfortable or not. It has to do with the dimensions of the space, the height, the enclosure and the design of the space itself. Good urban design creates spaces where people feel comfortable. If this happens, they stay, enjoy their surroundings, and spend money.

Not only do we have to maximize people space, but also design it well.

Win 4: The City Is a Place of Chairs

Chairs help maximize the value of people space and allow people to interact in a comfortable setting. People will sit on anything; they love to sit and watch the world go by, taking their time over a coffee or a glass of wine, interacting and exchanging ideas. A successful downtown recognizes the value of chairs. Chairs can be used to revitalize both the place and the people. When people spend time downtown, shopping, doing business, or visiting attractions, they get tired. Then they can do two things: go home—or sit, have a drink and continue to enjoy the downtown area.

For these two reasons, chairs, or some informal seating, are vital. Little Italy sets a great example. Chairs are placed along the sidewalk to encourage activity and shopping in the area; they have helped animate the space and create a positive and dynamic area.

Win 5: The City Is a Place of Movement and Connectivity

If the city contains places to enjoy, it is essential that these spaces be linked as a network, drawing people from one to the other. The concept of a network of parks, promenades and open spaces fits with this idea. These spaces need not be formal parks, but, rather, clearly delineated people spaces that form a continuum and take people from one attraction or community to another.

The spaces also need to be linked by a continuous bicycle network that integrates with the pedestrian network and with the transit system as well. Such a network maximizes the value of these spaces and is an incentive to landowners and developers. Retailers also benefit as foot traffic and turnover increase.

Win 6: The City Is Defined by its Arrival Points

Arrival points are very important to the success of cities. They set the image of the city, for better or worse, during the first few minutes of arrival. This image is hard to shift once established. There is both a positive and negative reason for getting this right. It applies to all arrival points by air, sea, rail, bus and car. The city can send a powerful message about itself to all who arrive on its doorstep.

For example, the refurbished Grand Central Station in New York speaks of importance and grandeur, of a city that is influential on the world stage. The new Gardermoen Airport in Oslo makes a statement about Norwegian design quality and world-class materials, and also says that Oslo cares about these things and is a city of beauty. Take a look at Japan's unique sea terminal in Yokohama. This revolutionary and brave design brings the city to the sea and the sea to the city. It bespeaks a modern, exciting city that takes risks, is bold and innovative.

There is also a very practical reason to focus on arrival points in the city—to get visitors quickly and efficiently to their final destination. Arrival points speak to the city's efficiency.

Win 7: The City Is a Complex, Dynamic System of Interactions

Jane Jacobs has written, "Cities are complicated: organic, spontaneous, and untidy." Cities require holistic solutions—it's simply not enough to arrive at a transportation solution for a transportation problem. There is a need for a broad-based strategy that addresses the vision in the Downtown Community Plan and emphasizes complete communities and complete mobility.

What Are the Implications for Downtown San Diego?

Today, most of the movement space in downtown San Diego is road space dedicated to moving people in automobiles. The road system and its associated parking requirements take up a large component of the land area in the downtown. The result is that, although the downtown road system generally operates at an



Yokohama, Japan

Centre City Development Corporation

In San Diego, the buildings themselves are quite tall and consistent with other downtowns, but the overall density is reduced by large areas devoted to roadways and surface car parking.

The downtown area in San Diego must find a balance. At present it is out of balance but has the potential to reallocate movement space back to people space and increase the productivity of movement space at the same time.

acceptable level of service (LOS), or better, during peak periods, the area of downtown available today for people space is much less than typically is found in successful world-class cities. This is borne out by residential and employment density figures for downtown, which are much lower than in other cities.

The downtown area is not balanced and more space needs to be given to people space. Fortunately, there is enough movement space to allow some reallocation. If the level of growth anticipated in the Downtown Community Plan were to be developed according to the existing ratio between automobile and transit use, a lot more movement space would be required. This would reallocate space the wrong way, further unbalancing the downtown space and threatening the future economic vitality of the downtown area.

Applying the previously enumerated key wins to downtown San Diego can result in a classic win/win scenario, in which the city can maximize people space, maximize the productivity of movement space and still cater to all the movement desires of people and goods.

This policy is in line with the Downtown Community Plan and the City of San Diego General Plan and it would create a vibrant, successful and livable downtown area. It would ensure the future economic viability of the downtown—indeed, it would make it a wealth generator for the whole region.



Little Italy, San Diego

Moving to Complete Mobility

Complete mobility is a term coined by Siemens AG that describes the future of transportation as follows:

- Complete mobility is user-focused, meaning it is personalized and meets users' expectations. It provides people with customized choices and allows them to make simple but informed decisions. It provides them with the quality of services they increasingly expect, joining mobility and personal connectivity. It supports a paradigm shift from passive administration of infrastructure to active management of services.
- Complete mobility is seamless, meaning people can focus on where they want to go and not how to get there or by what mode of travel. The system is balanced and there is a variety of ways to get around (walk, bike, transit, drive). Any journey may include whatever option, or combination of options, which makes the most sense for the trip. The system is integrated physically and virtually, allows for easy interchange between ways of getting around and becomes seamless and convenient for the user.
- Complete mobility is highly valued by its users. This means the system facilitates trade-offs and feedback on choices made that demonstrate the value of each decision. In this system, users will clearly understand the total benefits and total costs of their choices.

A complete mobility strategy is about quality, choices and balance, and a transportation system that contributes to the objectives of the community and those laid out in the Downtown Community Plan.

A Basis for Complete Mobility

Transit will be a major component of complete mobility—strongly integrated with walking, cycling and automobile travel. Today, about one-quarter of peak-hour morning commuters come into the downtown by transit—well below figures for cities such as Pittsburgh, Vancouver, or Ottawa. Although those downtowns are surrounded by auto-dominated suburbs, the leaders of these cities have recognized that transportation strategies for downtown areas are inevitably different from strategies that apply to the suburbs. By actively pursuing policies to encourage public transit use rather than increased dependence on automobiles, city leaders have exploited what public transit can offer to help create attractive and vibrant downtowns.

Transit's share of trips into the downtown during the peak morning commute:

San Diego: 23 percent

Pittsburgh: 50 percent

Vancouver: 50 percent

Ottawa: 43 percent

Moving to Complete Mobility

What Is Possible?

The Downtown Community Plan assumes that automobile travel will continue to be the dominant mode of transportation and that new parking capacity and street improvements will be required. There is no provision for the sort of major improvement in transit use and service that would be required by a complete mobility strategy.

Our analysis of the Downtown Community Plan (see Supporting Materials, pp. D42 to D56) reveals that, in the absence of significant transit improvements, major road capacity increases would be required on the edges of downtown. Significant new road capacity cannot be added without creating enormous social, economic and environmental impacts on the areas fringing downtown. Without feasible options for road expansion or significant improvements to other mobility options, the existing road capacity will limit the amount of new development that can take place in downtown and will dampen the economic vitality that new growth can bring.

This means there are three possible futures for downtown San Diego (see Supporting Materials, pp. D42 to D56):

1. **Building your way out of it:** Implement the automobile-centric recommendations and mitigations of the current Downtown Community Plan. Accept the adverse impacts of major new road capacity downtown and the economic implications of a largely auto-dominated downtown environment—*build your way out of it*.
2. **Limiting your economic potential:** Adopt a low-growth strategy, add no new road capacity and make minor improvements to the existing transit service, per SANDAG's Regional Transportation Plan. Modify the current balance between movement and people space wherever this can be done with little impact on the automobile level of service, and accept only modest increases in population and employment—*limit your economic potential*.
3. **Implementing balanced, sustainable growth - Complete Mobility:** Recognize that the land use and quality of life goals of the Downtown Community Plan can best be realized by a complete mobility strategy and a balanced transportation system which is achieved by increased emphasis on walking, cycling and transit—*complete mobility*.

Building your way out of it

In essence, this strategy is proposed in the Downtown Community Plan and in the SANDAG RTP. Some frequency improvements will be made to the trolley service and Coaster commuter train service and several new bus rapid transit (BRT) services will be added, based on using freeway Managed Lanes.

Under this option, the number of people using transit to enter downtown (in 2030) will rise modestly to about 22,500 during the peak morning commute. Most of the growth in travel, accordingly, will be automobile traffic. About 60,000 cars are

expected to enter downtown during the peak hour, although the present capacity of roads entering downtown is only about 40,000.

Both the Downtown Community Plan and the SANDAG RTP suggest two strategies to address this problem, an extensive program of Managed Lanes, and capacity improvements on the roads entering downtown. Even if many more people use carpools, there would still be a need for the equivalent of about 12 new traffic lanes entering downtown (or a 30 percent expansion of current capacity). This option still would result in congestion and travel times would be longer than they are today.

Compounding this problem would be a need to increase parking capacity by about 25,000 spaces. Assuming that this parking would necessarily be provided in structured parking (above or below ground) at an average cost of \$40,000 per space, the total cost would be in the order of \$1 billion.

Taking the road building and parking requirements into account, the level of investment that would be required is many times the requirement for a complete mobility strategy.

Limiting your economic potential

Given the high cost and impact of the road expansion strategy described above, another option is to forego the road expansion and undertake only the transit improvements currently in the SANDAG RTP.

With this option, very high congestion levels would exist on the downtown periphery and this would effectively limit the amount of growth that would occur. Growth could be 30 to 40 percent less than is proposed in the Downtown Community Plan.

In the absence of an adequate transit alternative, growth would migrate elsewhere. In some cases, development would move to other, less congested parts of the San Diego region and induce sprawl. However, much of the development that occurs downtown is there for a reason and it requires a downtown environment. This growth also would go elsewhere but, in the absence of a viable downtown option, it might not occur in the San Diego region at all.

Implementing balanced, sustainable growth—complete mobility

A complete mobility strategy can deliver the outcomes described in the Downtown Community Plan. Following are the key elements of a complete mobility strategy:

- Make a strong political, financial and institutional commitment to transit improvements to achieve the level of transit use required to make downtown work.
- Significantly limit further investments to improve road capacity and parking supply.

Taking the road building and parking requirements into account, the level of investment that would be required is many times what would be required for a complete mobility strategy.

In the absence of an adequate transit alternative, growth would migrate elsewhere

- Prioritize downtown modes in the following order: pedestrian, cycling, transit and automobiles.
- Establish transit use targets in key corridors.
- Take action to better orient the function of the internal downtown road system to people rather than vehicle movement.

A bold approach is needed to solve the problem and set the right course.

What does complete mobility mean?

Moving from the current auto-centric downtown transportation system to one with a better balance between transit and the automobile will require forward-thinking changes in transportation policy to match the vision contained in the Downtown Community Plan. A bold approach is needed to solve the problem and set the right course.

New road and parking capacity should occur only within the context of a strong commitment to measurable objectives for transit improvements. Additionally, the same strong commitment should be made to improve the walking and cycling environment, both to support transit and improve the overall quality of life in the city.

The transit objectives should be established as targets for transit use along key corridors.

Transit objectives should be established as targets for transit use along key corridors. They are simple to understand and track and help concentrate transit investments in areas where they are most needed and will have the greatest effect. They can also be the basis for targeted land use and parking policies.

Current road capacity is about 40,000 automobiles an hour. The maximum number of people able to enter the downtown by auto in the peak hour, without road improvements, is about 50,000. Using the projected growth in population and employment envisioned in the Downtown Community Plan, however, the total number of peak-hour person trips to downtown probably will be on the order of 100,000 by 2030. This means, after an allowance for walking and bicycling composed of, say, 10 percent of all trips, a complete mobility strategy will require that (when through trips are included) about 48,000 people use transit to enter and travel through downtown during a typical peak hour in 2030. This is more than three times today's volumes of about 15,000 trips using transit during the morning commute peak hour.

A bold approach means that about 50 percent of all peak hour commuters will need to travel by transit compared with about 23 percent today. While ambitious, this is not an unreasonable objective and has been achieved elsewhere.

About 50 percent of all peak-hour commuters will need to come by transit compared with about 23 percent today. Although ambitious, this is not an unreasonable objective and has been achieved elsewhere. To increase the transit mode share, the level of service will need to be significantly improved, comprising high-quality, comfortable and direct services that offer improved service speeds, higher service frequencies not requiring a timetable, and a reduced need to transfer. The end result of achieving this target, based on the experiences of other cities, is a more healthy balance in mode share consisting of approximately 48 percent of people coming into the city by transit, 10 percent by walking and cycling, and 42 percent by the automobile.

What could it look like?

Can a complete mobility strategy actually work in San Diego? To test the feasibility of the concept in a practical way, a representative transit network and service design option was developed (see Supporting Materials, pp. D42 to D56). The principles, objectives and assumptions used in creating this representative network were as follows:

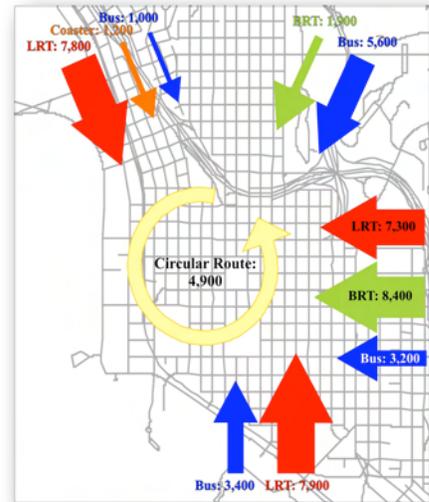
- Designed to meet the needs of the 48,000 transit riders expected to enter the downtown during the morning peak commute hour
- Incorporated essentially the same transit network proposed under RTP 2030, but with increased frequencies and some modifications of routings to meet the expected demand
- Coaster infrastructure could be improved to accommodate an increase in service frequency
- Trolley infrastructure could be improved to accommodate an increase in service frequency
- Trolley network could be reoriented within downtown (to take full advantage of service and frequency opportunities on both C Street and Harbor Drive) and along the existing corridors, and also be extended to serve the midcoast corridor to University Town Center and the airport
- Extensive Bus Rapid Transit services and infrastructure can be provided in the nonrail corridors and that exclusive bus and BRT infrastructure to access the downtown can be developed.

The purpose of these changes was not to recommend a specific infrastructure plan for 2030, but to determine whether a nongrade-separated rail solution could meet projected future needs. Future studies will, of course, have to test and compare other network options including a modified version of the existing network before any final choice is made.

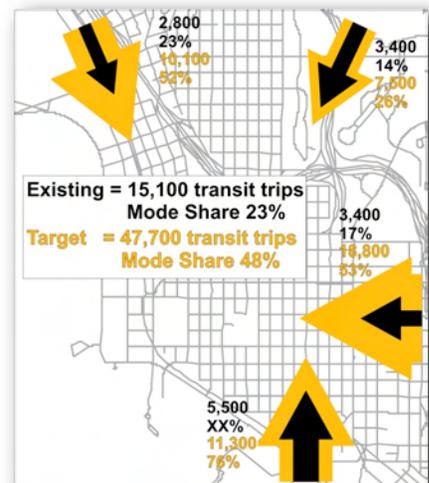
Analysis of this representative concept demonstrated that an at-grade-solution could work, thereby avoiding the need for expensive tunnels or additional routes. However, it would require more vehicle capacity and greater frequencies of service than is currently available to handle the additional passengers. Significant service frequency improvements will be required. The volume of buses on the proposed new BRT in the SANDAG RTP will need to be increased and most of these vehicles will have to be articulated or higher-capacity buses. The peak hour volume of buses on the existing bus routes will also need to increase.

Taken together, the projected volume of buses and BRT vehicles could be accommodated on the streets now in use by buses. No new street capacity will be required for this purpose but, given the high volume of bus traffic, it would be worth dedicating some of the existing street capacity to exclusive bus lanes. This would

The diagram below shows the projected morning peak hour person trip flows by transit mode in 2030 that would be required to support the 2030 *Downtown Community Plan*.



The diagram below shows the existing and target morning peak hour transit mode shares for each corridor.



further improve the transit service and would be in keeping with the principle of favoring the movement of people over the movement of vehicles.

This sketch planning analysis demonstrates that a complete mobility transportation strategy for downtown San Diego is feasible as long as high-quality bus rapid transit is provided in the nonrail corridors in San Diego County and rail infrastructure can be improved, reoriented and expanded. Peak-hour transit use will need to more than double over the next 20 years. The 48,000 peak-hour morning transit users can be accommodated without having to resort to major rail upgrades, such as a trolley tunnel in downtown.

Complete Community

Complete community is achieved by taking the seven deadly wins described earlier (and see Supporting Materials, pp. D6 to D23) and using them to transform the nature of downtown San Diego.

Win 1: The City Is a Place of Exchange

The places where people interact socially are “places of exchange,” or people space. A transportation strategy based on maximizing people space and the productivity of movement space would rebalance the downtown space and increase people space.

Downtown San Diego already contains two areas that demonstrate this win and how it can be successful, the Gaslamp District and Little Italy. Both are textbook examples of getting the balance right. Indeed, the Gaslamp District is so successful that more people space is needed. Little Italy has done it more subtly by slightly extending sidewalks at intersections to create people spaces with seating from which people can watch the world go by. All-way stops are provided at major intersections, effectively giving priority to pedestrians. The result is an economically buoyant area, a place to enjoy, and a place to stay.

An example of a place to apply this win is the area around the base of the NBC building, where the streets along the east, west and south could be made more pedestrian friendly by expanding the people space and allowing the adjacent retail and restaurant establishments to “spill” onto the sidewalks. Excellent ready-made seating around the base of the NBC building already exists, in the form of steps. The operational needs of the hotel and the car parks could be readily accommodated by narrowed roadway areas. The message, though, would be clear—pedestrians would have priority and automobiles would be intruding into the people space.

Streets within downtown could be specifically targeted for rebalancing, particularly those that serve as important transit corridors. In Bordeaux, France, a policy was adopted to limit movement space in new and redeveloped roads to 50 percent of the total street width. This 50 percent target can work, regardless of the street width, although building heights become important when creating the feel of the street as the right-of-way gets wider. Setting a target helps to address the relative balance of competing uses in a corridor and explore trade-offs; such as between travel lanes and parking, or between diagonal parking and pedestrian spaces. Transit is not considered as part of the 50 percent of movement space and can maximize the productivity of the street.

Win 1 Action: Maximize people space and minimize movement

The transformation of the downtown will not happen overnight and the successful cities that have carried out this rebalancing have done it incrementally working with the business community and monitoring the effects. The key is to identify pilot projects where the process can be started.



Opportunities include:

- ▶ Expand people-space opportunities by identifying and developing pilot projects.
- ▶ Identify corridors where vehicle space can be limited to 50 percent.

Complete Community

A similar concept could be applied in San Diego by identifying key streets and demonstrating the trade-offs and results. Parts of Fifth Avenue in the Gaslamp District are already balanced, with only 50 percent of the right of way dedicated to automobiles. Nearby Third, Fourth, and Tenth avenues and West Broadway are closer to 65 percent automobile-focused due to diagonal parking or added travel lanes.

Win 2 Action: Maximize the productivity of movement space

Opportunities include:

- ▶ Prioritize road space and investment based on a hierarchy of users from pedestrian, to cyclist, to transit service, with greater priority over further auto-based improvements.
- ▶ Adopt a significantly increased transit mode share objective for downtown travel.
- ▶ Recognize the need to give access to the private automobile and parking, but manage this in a way that protects the economic and social viability of the downtown.
- ▶ Rebalance parking levels to support high quality transit and alleviate burdens placed on business.
- ▶ Reduce the use of diagonal parking to free up people space.
- ▶ Carefully consider the application of parallel parking, on a case-by-case basis, to minimize the negative impact on people space.
- ▶ Put policies in place to restrict off-street surface parking, particularly in key transit corridors or areas with high-quality people space.
- ▶ Relate parking requirements to quality and level of transit service in a corridor.

Win 2: Transportation Is about People and Goods, Not Vehicles

A transportation strategy focused on people and goods would give pedestrian, cyclist and transit service improvements priority over further auto-based improvements.

Parking is a major challenge to achieving a balanced downtown and a viable complete mobility strategy. Parking oversupply impacts transit use and the quality of people space in a number of ways. The availability of low-cost parking not only is an inefficient use of valuable downtown property but also provides little incentive for greater transit use. Extensive surface parking increases walking distances and degrades the quality of the urban realm.

Diagonal parking can be a positive or a negative depending on the application. On the one hand, diagonal parking and corner bulb-outs have been used successfully on India Street in Little Italy, to increase parking supply, calm traffic, and create a “village” atmosphere. However, diagonal parking can shift the balance and quality of a street, as it takes away space for people and it can be a hazard for cyclists. With parallel parking, cars are spaced out and there are gaps between them, allowing visual communication between both sides of the street. Diagonal parking allows vehicles to overlap, and a greater expanse of cars can create a wall effect and a visual barrier from the sidewalk. Parallel parking on both sides of a street can create a parking lot effect, detracting from people space and thus should be considered on a case-by-case basis to minimize the negative impact on people space.

Parking has long been a key feature of Southern California cities and has come to be expected by its residents. It comes with a cost, however. There is the direct cost to business in providing the parking and there are also the congestion problems that occur when parking levels are out of balance. Parking availability in relation to jobs is out of balance in downtown San Diego when compared to other cities. In fact, San Diego has more than twice as much parking in relation to employment as cities such as Vancouver, Bordeaux, Portland, or Brisbane.

At the same time, business views the parking costs as too high and as impacting development. Annualized parking costs are roughly \$1,000 per space for surface parking, \$2,000 for structure and \$3,000 for underground parking. Reducing the need for additional parking, while simultaneously maintaining high levels of mobility, would considerably lighten the burden on business.

An approach used successfully elsewhere is to relate parking levels and requirements to the level and quality of transit service provided. In corridors where people have choices—with very good transit connections and a high frequency of service—there would be less need for parking than elsewhere. A corridor approach, focused on key corridors coming into the downtown, also effectively supports unbundled parking policies, as it provides people with choices as to whether they require parking and allows them to save money by not necessarily having to purchase or rent parking space. This can ensure that parking levels support transit use and that appropriate levels of parking are provided in areas which are less accessible to transit. Another approach is to target parking level reductions in key areas with good transit options. Copenhagen implemented a long-term plan to reduce parking levels in key downtown areas. The significant reduction in parking levels led to a positive change in the quality of life in downtown. Copenhagen gradually reduced the parking supply by 3 percent each year and carefully monitored the impacts.

Win 3: The City Is a Place to Enjoy

San Diego already has the beginnings of a network of special places, such as the Gaslamp District, Little Italy, Balboa Park, PETCO Park, Seaport Village, the Convention Center and the waterfront. More can be added incrementally, including the area around the NBC building and the area between Santa Fe Depot and the cruise terminal. Parts of C Street, from Park Boulevard to about Seventh Avenue, are emerging as people places. Other segments have significant opportunities to improve the quality of the urban realm, and stakeholders expressed a strong interest in seeing C Street achieve its potential. Stakeholders also felt that Broadway was underperforming, and that transit was having a negative effect because of tailpipe and noise emissions. Moving to newer vehicle and engine



Win 3 Action: maximize the value of people space

Opportunities include:

- ▶ Open up a diagonal through Horton Plaza and connect to Balboa Theatre.
- ▶ Continue opening up Horton Plaza so that it is outward facing, rather than the inward-looking square it is today.
- ▶ Develop C Street as a people space.
- ▶ Develop Santa Fe Depot and environs.
- ▶ Leverage the locational advantages of 12th and Imperial.
- ▶ Reclaim some small parking areas for cafés and outdoor places.
- ▶ Ensure transit is not negatively impacting urban quality in key corridors (from an air quality and noise standpoint).



technologies, with low air and noise emissions, can ensure that Broadway enjoys the benefit of great mobility options without the negative impact.

Win 4 Action: Maximize the opportunity for sitting and

Opportunities include:

- ▶ Provide options so people and goods can use the best way of getting around for their trip, whether it is walking, cycling, transit (rail / bus / ferry) or driving.
- ▶ Link the downtown to Harborfront / Embarcadero.
- ▶ Reconnect Seaport Village.
- ▶ Develop a high-quality, safe and enjoyable pedestrian network, focusing on key places and transit.
- ▶ Develop safe and attractive bicycle facilities as key components of the transit service.
- ▶ Develop a rental bike concept to facilitate movement in the downtown.
- ▶ Continue actions to formalize pedicab service.
- ▶ Develop high-quality transit connections to other regional centers and within downtown.
- ▶ Reconsider guidelines for utility box locations along pedestrian movement spaces.

Win 4: The City Is a Place of Chairs

Chairs help to maximize the value of people space and allow people to linger and interact in a comfortable setting. San Diego has a wonderful example of this in Little Italy where the business community sets out metal chairs along the sidewalks every morning.

This successful local example should be applied throughout the downtown area, again in an incremental way, learning from the experience of Little Italy and the Gaslamp District. There are places where this can begin, such as the area around the NBC building, as mentioned earlier. This should also tie into a pedestrian and place network, ensuring that chairs are supported by activity in the area and are a catalyst for more activity. Busy, active downtown spaces ensure that chairs contribute in a positive way.

Opportunities to create modest-sized people places where seating could be provided should be sought, such as at intersection bulb-outs in Little Italy.



Win 5: The City Is a Place of Movement and Connectivity

There are many places to enjoy in downtown San Diego but they are not well-linked. A network needs to be developed that links all of the key local nodes, special places and attractions that are important to the community, businesses and visitors. The first impression is that vehicle traffic has priority. In economically successful cities, people always have priority in the downtown and traffic is allowed, but as a guest. The implication of this philosophy is that it should behave as a guest.

A concept that could work particularly well in San Diego is the Paris “Vélib” bicycle rental system (see Supporting Materials, p. C14). The system is designed to make short-distance bicycle trips simple, efficient, affordable and convenient. Paris has 20,000 bikes at 1,450 stations throughout the downtown core. Renting a bike is easy, as users need only swipe a card to take a bike that they can then return at any downtown station. Rental rates are designed to encourage short-term use; the

first 30 minutes are free, and each additional half hour is increasingly expensive. On-street rental stations take the place of on-street parking, enabling the potential for higher turnover for nearby businesses as about two parking spaces are replaced by 20 bicycles. The system was put in place and operated by a marketing company, in return for public advertising space.

For San Diego pedestrians, a significant issue is the number and location of utility boxes that often obstruct downtown sidewalks. Although particularly noticeable in such high traffic areas as Little Italy, it is also an issue for new developments. On lower Front Street, there is a good example of people space having been expanded by widening the sidewalk into the space that would normally be used for on-street parking. Unfortunately, utility boxes are grouped in the movement space for pedestrians. Addressing this issue requires reconsidering how utility franchises are established and requires providing guidelines for appropriate locations. A people-focused placement approach could help planners decide if it makes more sense to locate the utility box on the sidewalk or possibly in an on-street parking space.

Another option would be to formalize the existing pedi-cabs by structuring the service and ensuring it meets quality and performance guidelines. Progress in this area is already underway.



Paris rental bikes



Win 6: The City Is Defined by its Arrival Points

This is a win where San Diego has a head start, because it has the bay, the weather and a dramatic downtown. There are major arrival points to the city and downtown, as well as entry points to within-downtown neighborhoods—the fountain in Little Italy is a great arrival point, for example. At present, however, many arrival points are poor, especially from the domestic terminal at the airport or from the cruise ship terminal in the Port of San Diego. Also, unlike train stations in other major urban centers, the Santa Fe Depot is not well integrated with the city and does not draw visitors to the town center or waterfront.

There are two great opportunities here—at the airport, and between Santa Fe Depot and the cruise ship terminal.

Let’s start with Lindbergh Field. The proposal to build a new facility, either a new terminal or a remote terminal, seems to offer exciting potential. An integrated mobility hub could be created to link up with the freeway system, the Coaster

Win 6 Action: Leverage unique arrival points.

Opportunities include:

- ▶ Improve connections between downtown and the airport.
- ▶ Accommodate intermodal transit facilities within and/or adjacent to the airport.
- ▶ Enhance the Santa Fe Depot and Cruise Ship Terminal area as a downtown arrival point with better transit and pedestrian connections, as well as the creation of new people space and facilities to animate the area.
- ▶ Consider high speed water taxis linking downtown, Coronado, the airport, and other regional destinations.

commuter rail service and the trolley line, providing a high-quality link to downtown and the region. This would benefit both downtown and the entire region by improving connectivity to national and international air services.

There is also the potential to emulate the Venice water taxi system by providing high-speed water taxis to downtown and Coronado—a fun, premium way to arrive in the city.

The space between the Santa Fe Depot and the cruise ship terminal is truly unique. The iconic Spanish Mission-style Santa Fe Depot building is in the direct line of sight of the cruise terminal. At present, however, it is a poor arrival experience with a low-quality visitor information facility, minimal people space and acres of parking acting as a barrier between the two.

The space between these two arrival points could be a high-value space with the feel of Las Ramblas in Barcelona. A major public square could be created at one end with retailing and visitor information services. We realize there are plans for this

Great asset....



Poor setting



area and that the land is valuable, but the economic benefit to the city is significant and an innovative design could be developed which incorporates these ideas into the development plan.

The same principles can be applied to key bus and trolley terminals, creating well-designed and well-signed spaces that serve as a reference point in downtown and market the quality of service they provide.

Win 7: The City Is a Complex, Dynamic System of Interactions

Building holistic, integrated solutions means looking beyond a transit strategy for downtown and considering how transportation and transit can achieve the vision of the Downtown Community Plan. In other words, complete community, complete mobility.

Key considerations for delivering a complete mobility strategy are:

- Determine who will champion the strategy and who needs to be part of the solution.
- Decide how investment is going to be prioritized to deliver complete mobility.
- Determine who is going to implement the plan and identify the potential barriers. As a broad-based plan, this will involve not just transit, but a number of agencies, service providers and business interests.



Win 7 Action: reprioritize investment and address governance issues

Opportunities include:

- ▶ Demonstrate a strong public commitment to **complete community | complete mobility** through policy change and reprioritization of investment strategies.
- ▶ Promote leadership that recognizes the role of transportation to drive the economy and enhance the quality of life.
- ▶ SANDAG, the City of San Diego and CCDC work together to devise a new regional transportation vision that recognizes the central role of downtown and its ability to be a catalyst for the region.
- ▶ Implement a broad-based community involvement process that includes all stakeholders (e.g., neighborhoods, property owners and businesses) working together toward a common vision.
- ▶ Ensure the vision and policies of the Downtown Community Plan are supported by other local and regional policies and programs.

Making it Real - How Do We Start?

Developing an economically and environmentally sustainable downtown and moving toward **complete community | complete mobility** will require the following key actions:

1. Develop a detailed complete mobility strategy.
2. Reorient transportation investment to objectives of Downtown Community Plan.
3. Link complete mobility to development.
4. Find the money.
5. Integrate **complete community | complete mobility** opportunities into Downtown Community Plan implementation.
6. Explore new governance models.
7. Identify quick wins.
8. Evaluate specific project features

1. Develop Detailed Complete Mobility Strategy

The strategy developed here sets a new direction, principles, and a general concept and requirements for how the objectives of the Downtown Community Plan may be achieved. This will need to be expanded by implementing the following:

- Defining transit mode share targets for key corridors
- Identifying specific infrastructure and service requirements (for example, this could include specific requirements for Coaster, trolley and BRT services, as well as better integration of transit with the airport)
- Outlining capital and operating costs
- Developing detailed rebalancing concepts for key corridors
- Undertaking community consultation;
- Establishing priorities (see action no. 2) and developing a phasing plan
- Integrating concepts and policies (e.g., parking) emerging from concurrent studies (see action no. 5)
- Identifying responsibilities for implementation and required partnerships.

Key step to take:

- ▶ Develop detailed complete mobility strategy.

Making it Real - How Do We Start?

2. Reorient Transportation Investment to Objectives of Downtown Community Plan (Policy Audit)

Key steps to take:

- ▶ Conduct policy audit to determine how well transportation investment is meeting the objectives of the Downtown Community Plan.
- ▶ Reprioritize transportation investment to focus on Downtown Community Plan objectives.

A problem that many communities face is that investment in transportation is typically based on the severity of a specific transportation problem, rather than its being focused on the wider objectives which a community may have. This is akin to treating the symptom rather than the cause. Reorienting transportation investment toward the objectives in the Downtown Community Plan is a key step in rebalancing the downtown.

A “policy audit” of transportation investment should be carried out to determine how well it responds to goals and policies contained in the Downtown Community Plan and the proposed downtown mode share targets. The audit is both a process and a product. The process is step-by-step decision framework that arrives at agreement among stakeholders on principles and priorities. The product is the audit itself, which identifies areas in which transportation can have a direct or indirect impact on policies and would look at transportation projects and assess how well they address wider objectives. It would also address possible conflicts or gaps in plan policies. Typical transportation investment criteria, such as levels of congestion, still will be used, but this approach can help to ensure that the investment package is balanced, can identify gaps where transportation projects are not meeting objectives, and can give an overall rationale for why individual projects make sense. The strength of this approach is that it can address very different types of projects and simultaneously consider both projects and programs.

A main tool used in the policy audit is the audit table that consists of high-level objectives, which typically are the triangle of success elements described earlier: competitiveness, the environment and quality of life. These are then linked to more detailed objectives contained in community planning documents. Finally, the audit table connects these objectives to specific transportation objectives and measures. The result is a cascading table of objectives, sub objectives, transportation objectives and measures, which links individual transportation projects or programs to wider community objectives.

Two key aspects of this approach are that it references existing community plans and the audit table is built in consultation with stakeholders. It facilitates dialogue about the important objectives and helps different stakeholder groups to reach agreement on priorities. The approach is designed to develop consent on priorities by following a structured process and ensuring that community objectives are translated into the audit table before stakeholders discuss projects or programs.

A simplified scoring system is used in the table, consisting of checks and crosses that are then color coded to give stakeholders visual cues on how a project profile matches objectives. The color coding also comprises an overall visual pattern of the performance of projects as a whole, as compared to objectives. This scoring system offers a balance between overly quantitative approaches, which ignore the

role of decision makers, and the more subjective approaches that may not have the analytical rigor required. The policy audit approach uses both quantitative and qualitative measures, scoring guidelines and a peer review process to ensure greater robustness when scoring the more qualitative measures. A greatly simplified audit table is shown here, with excerpts from real-world examples provided in the Supporting Materials (see pp. D6 to D23) to demonstrate the cascading nature of the objectives in the audit table; the scoring system, color coding and project profiles.

This policy audit process has been undertaken in a number of contexts in North America and Europe. For example, in London, United Kingdom, it helped to identify what transportation investments were important for different London Plan objectives. As a world financial center, it was important to identify key projects that support London’s financial sector, such as reliable links to gateway airports and a high-quality urban realm in the Docklands financial center. At the same time, the policy audit identified those projects that would promote social inclusion for economically disadvantaged areas. The policy audit then helped to explore trade-offs and set priorities in meeting these two different social and economic objectives.

In the context of San Diego, a policy audit could help communicate priorities such as a top ten list of transportation projects that meet different community objectives. For example, it could communicate the top ten projects that will contribute the most to growing the regional economy, or to meeting climate change abatement targets, or to revitalizing key areas of downtown.

3. Link Complete Mobility to Development

A key strategic issue to consider is the timing of transit service level expansions—will they happen after development, when demand has been generated, or will they occur ahead of development, in order to create additional transportation capacity and stimulate investment? This difficult, compound question has been answered in different ways in different cities (see Supporting Materials, pp. F1 to F8), but essentially requires a city to decide to what degree it is willing to invest in advance of demand to shape land use. The proactive, rather than reactive, approach comes with certain costs and risks that can be very off-putting to transit agencies. Often, it involves a difficult balancing act in which the art lies in introducing service at the right time to both react to and stimulate development. Regular monitoring and updates are essential to ensure that transit investment and development are aligned.

Without question, ongoing analysis of development must be part of the phasing and monitoring solution. Planning scenarios should be tested annually, using proposed and planned development against transportation capacity and the achievement of corridor transit mode share targets. This can help to inform transit capacity expansion decisions, while simultaneously providing a check to make sure development is not running ahead of capacity, or vice versa. As in Vancouver,

An example of a policy audit analysis

	Project A	Project B	Project C
Policy 1	✓✓✓	✗✗✗	✓✓
Policy 2	✗	✓✓	✓✓
Policy 3	✓✓	✓✓	✓

Key steps to take:

- ▶ Analyze and monitor progress toward objectives on an annual basis including transit mode share targets.
- ▶ Focus Transit Oriented Development strategies on key transit corridors.
- ▶ Undertake corridor-level approach to filling existing housing vacancies.
- ▶ Maximize ridership potential on key existing transit corridors by developing innovative corridor-level strategies.

Bordeaux and Portland, cooperative efforts by transportation planners at different levels of government can establish a stronger coordination between transit service levels and development phasing .

A complete mobility strategy will require some new thinking about development. Achieving the envisioned transit ridership will be a substantial challenge without a focused effort to drive up densities along key transit corridors. The Downtown Community Plan envisages significant growth, but it will be essential to focus it in the right areas. The additional transit capacity identified in the complete mobility plan can create a basis for increased development in key corridors. The positive relationship between increased densities and transit ridership will be reinforced by phasing development in a manner that links capacity expansions and density.

San Diego has had some experience in transit oriented development (TOD), including the One America Plaza development. San Diego might consider expanding its TOD initiatives to include developing and adopting a new TOD plan to support strong links between expanded transit capacity and development.

For example, San Francisco adopted a TOD policy at the same time as its Transportation 2030 plan. The three components of this policy relevant to downtown San Diego are:

1. Corridor thresholds for minimum densities in transit station areas.
2. Station area plans to support transit-oriented development at the site and on a local scale (e.g., in a 500-meter radius from BRT/LRT stations). The transit-station-area special designations in Minneapolis are one example. In San Diego, Smart Corner and One America Plaza are good examples of this approach.
3. Corridor working groups to bring together multiple levels of government and agencies. In the San Diego context, it could also be appropriate to bring the development community to the table as part of this ongoing monitoring and planning process.

Development levels and (or) parking requirements also could be linked to the level of transit service in a particular corridor as well as to the achievement of the transit mode share objectives.

It will be important to make full use of the existing housing stock by supporting efforts to fill existing housing vacancies. Although this is a concern that typically is left to the market, it ultimately impacts transit and the quality of life in an area. A transit and corridor-level approach can help to focus efforts that already may be taking place in the market. This area needs to be explored further but could include preferential mortgage and/or insurance rates. Preferential rates are already used in different areas; for example, government workers in Seattle enjoy a preferential mortgage rate if they buy a property within the city limits, to encourage workers to live in the communities they serve. Move-in bonuses could be offered, or free transit passes could be given out for a given period of time. A limited-duration free-

transit pass program is already commonly used for new developments and this approach could be applied to existing housing along a transit corridor. UCSD subsidizes several bus routes near the university and provides free service to staff and students on these routes. State and federal actions to address the housing market challenges also could be leveraged and applied at the corridor level, with the spin-off benefit of maximizing the city's investment in transit.

The other opportunity for achieving corridor transit ridership targets is to ensure that the ridership potential of existing development is fully exploited. Downtown San Diego has many well-developed corridors that have potential for attracting additional transit riders through innovative corridor-level initiatives which could include improvements to transit service levels, enhancements to the quality of the customer experience, operational improvements, and marketing.

Marketing and specifically targeting customers in a corridor can be very effective. For example, in Vancouver the service improvements and marketing for the "B-line" attracted a significant number of new riders to transit in a specific corridor: 30 percent were new to transit.

The technology available for improving transit service and marketing has progressed considerably in recent years and can be used to change the way potential customers think about transit. SANDAG, MTS and others are already advancing in this area and have rolled out a number of technology initiatives that could be built upon to achieve complete mobility. The www.511sd.com service provides information designed to enhance mobility options for cycling, transit and automobiles. It includes an online trip planner for transit users that can include such user preferences as fastest journey, fewest transfers, or shortest walking distances. MTS also has developed a new smartcard that will integrate fares across services and can be used as an electronic purse.

Smartcards can make journeys easier by ensuring seamless transfer between different services and can also be used to leverage additional services and marketing efforts. For example, transit could be linked to retail along a specific corridor by providing "frequent flyer" points that are redeemable with retailers in the corridor. Another possibility, although perhaps longer-term, is to include real-time information about when the next bus or train is coming, either at the stops themselves, or within business or housing units. As an example, a recent development in London included a real-time bus arrival display in every new house.

Key steps to take:

- ▶ Develop a detailed financial strategy for complete mobility that includes innovative finance and potential private sector investments.
- ▶ Take advantage of all possible state and federal programs and opportunities to access funds.
- ▶ Advocate for access to a broader range of financing and fund raising opportunities.

A complete mobility strategy will be far more beneficial than an automobile-oriented solution, even when external costs, such as air quality and quality of life, are not considered

4. Find the Money

To make the plan a reality will require a detailed financial package that will look at what it will cost, the cost of not doing it, and how to pay for it. A complete mobility strategy will be far more beneficial than an automobile-oriented solution, even when external costs, such as air quality and quality of life, are not considered. A full cost accounting should therefore be undertaken and it should include the possible impact of climate change legislation. Innovative financing must also be considered as transit is traditionally at a disadvantage when it comes to funding expansion and operation.

Cities across the United States traditionally have relied on federal- and state-level programs that provide grants and funding for transportation improvement and, in some instances, dedicated transit funds. Transit competes with roadways for a significant proportion of these funds, which also offer varying levels of support for capital projects and operating expenses.

The viability of a complete mobility strategy for downtown San Diego will depend largely on financial challenges for transit investment. In the current context, TransNet, the local half-cent sales tax for transportation improvements, is one of the more significant funding sources in San Diego. However, TransNet, which received a 40-year extension in 2004, earmarks only one-third of tax revenues for transit projects, and any increase requires a two-thirds voter approval.

The transit improvements associated with complete mobility will require significant investments to cover capital and operating costs. Several cities, including Dallas, Denver, and Chicago, recently have attempted to address similar challenges by adopting new funding approaches. To a degree, transit agencies in Portland, Denver, and the Bay Area have been successful in procuring revenue for transit by partnering with private sector developers. In other instances, municipalities have instituted innovative financing mechanisms, such as assessment districts and tax increment financing, for areas surrounding transit stations (see Supporting Materials, pp. E1 to E7).

Opportunities to generate revenue through land development and innovative financing mechanisms may hold the potential to address downtown San Diego's transit funding challenges to a great degree. However, as with most new initiatives, new sources of transit funding will require public agencies, including Centre City Development Corporation and SANDAG, the City and MTS, to work together to implement financing schemes that provide directed incentives for developers, businesses and residents before these stakeholders recognize the benefits offered by transit use and transit-intensive areas and begin to support them.

5. Integrate Complete Community | Complete Mobility Opportunities Into Downtown Community Plan Implementation

A number of forward-thinking and innovative initiatives are underway at CCDC. Our recommendations for achieving **complete community | complete mobility** should work hand in hand with these initiatives. Following is a list of projects being initiated, undertaken or nearing completion. As recommendations resulting from these efforts begin to coalesce, we suggest they be integrated into a **complete community | complete mobility** strategy. Additionally, the outcomes of these studies should be the basis of the policy audit described earlier. The policy audit also can be used to reconcile what in some cases may appear as contradictory policy directions coming out of the various initiatives. The best ideas coming out of all these initiatives can be woven together to make progress on achieving the goals of implementing the Downtown Community Plan and building a world-class city.

Sustainability Study

CCDC is preparing an urban sustainability program and design guidelines with the intent to promote creativity and encourage innovative approaches to sustainable planning, design, energy efficiencies, appropriate wastewater management and building technologies. The program and guidelines will describe the role of sustainable practices in enhancing the quality of architecture and environmental design by outlining methodologies, incentives and policies to achieve sustainable standards for buildings and their surroundings in the Centre City. The guidelines will be written to integrate into the Centre City Planned District Ordinance (PDO) and design review process, and will define applicability thresholds for implementation of proposed private and public sector projects as well as rooftops, parks, plazas and open space.

Downtown Lighting Study

CCDC has issued a contract to prepare a Comprehensive Lighting Design Plan and Guidelines that support and enhance the profile and experience of San Diego's downtown skyline and address specific areas such as neighborhoods, public places, parks, streetscape elements, public art and lighted signage. The guidelines will describe the role of lighting in enhancing the public realm and the architecture of buildings at night and will outline methods for incorporating lighting design as part and parcel of architectural and urban design. The guidelines will be written to integrate into the Centre City PDO and will apply to proposed high-rise developments, as well as existing high-rise buildings that seek to incorporate exterior lighting.

Open Space Needs Assessment Study

Downtown has undergone a tremendous growth in housing over the last several years. There is need to expand and enhance downtown's public realm to support and encourage this growth and fulfill many of the objectives set out in the Downtown Community Plan. CCDC is beginning an open space needs

Key steps to take:

- ▶ Leverage planning initiatives (as listed herein) by integrating key principles of complete mobility strategy outlined in this study.
- ▶ Cooperate with area agencies involved in mobility at all levels (e.g. City, SANDAG, MTS, Airport, Port, Caltrans) to encourage interaction between their ongoing initiatives and actions.
- ▶ Monitor outcomes of *Downtown Community Plan* Implementation for consistency with an adopted complete mobility strategy.

assessment that will be used in the ongoing process of developing a program for downtown parks, plazas and open spaces. The assessment will survey downtown residents in an effort to understand the characteristics of urban recreation. It will also work toward determining which sites are best suited for active recreation, cultural amenities, public events, passive uses, children's play, pet exercise, the enjoyment of nature, and other open space uses. The outcomes of the study will provide directions on improving parks and the public realm.

Downtown and Neighborhood Design Guidelines

This multiyear effort will take place in two main phases: Phase I will develop design guidelines/criteria that will apply throughout downtown; Phase II will begin to develop an individual document, or chapter, for a neighborhood (or number of neighborhoods) to ensure that future development projects (both public and private) create an environment that contributes to that neighborhood's character. For Phase II, the priority neighborhoods are Little Italy and East Village. The Cortez, Civic/Core and Columbia neighborhoods are anticipated to follow.

Downtown Retail Study

The 2006 Downtown Community Plan projects that by 2030, downtown could accommodate 90,000 residents and 165,000 workers. This growth is stimulating demand for more retail. CCDC is conducting a thorough urban retail analysis of downtown's existing market and projected growth to determine how to best attract retailers, the most appropriate retail to serve downtown in the future, and the primary locations that retail would work best. The objective is to attract more retail to downtown San Diego and to ensure that it is the right type of retail to serve the growing downtown community.

Comprehensive Parking Study

CCDC is in the process of conducting a Comprehensive Downtown Parking Plan. The Plan will be a guiding document and implementation tool for parking strategies regarding infrastructure solutions, supply and demand, policy, requirements, management, and other elements of parking. The original plan was developed in 1997 and established both short- and long-term goals, most of which have been achieved. The task now is to conduct a study of the supply and demand for parking, and assist in establishing new goals, policies and management solutions. Parking is a key component in planning a world-class downtown, and the data from this study and its recommendations should be considered in the context of the overarching principles of a **complete community | complete mobility** solution. Specific projects coming out of this study should also be listed and analyzed in our proposed policy audit.

Other Important Studies

In addition to the above-described work being initiated by CCDC, there are numerous initiatives being pursued either in conjunction with CCDC, or by integral but autonomous agencies in the surrounding areas. These efforts should also be recognized and integrated into a **complete community | complete mobility** strategy and they should appear in the recommended policy audit. These efforts

include the North Embarcadero Visionary Plan, implemented by the Joint Powers Authority (of which CCDC is a member); Airport Expansion and Transit initiatives in which CCDC staff sit on several advisory committees; the recently settled SANDAG/SOFAR legal settlement; SANDAG- and Caltrans-related I-5 initiatives; and, the I-5 Congestion Study managed by CCDC as a condition of the Final Environmental Impact Report for the Downtown Community Plan. The state of California will also play an important role as its guidelines will impact how regional planning is conducted.

6. Explore New Governance Models

A clear message coming out of the stakeholder consultation process was that the current governance arrangements in the region can impede progress on implementing **complete community | complete mobility**. These institutional challenges are endemic to the way cities are governed around the world and are part of the planning context. Like most cities, in San Diego there are numerous government agencies and stakeholder groups involved in planning and implementation for the downtown. They often have fragmented areas of responsibilities with many overlaps between groups and the geography of the problems encountered do not match the structure or the geography of the institutions tasked with addressing these problems. For example, in San Diego, SANDAG is responsible for transportation investment, MTS operates the transit system, and CCDC and the City plan for land use.

This study and CCDC will not resolve these issues; actions can be taken to improve understanding of the impediments this plan may face and identifying ways to improve the institutional arrangements to maximize the potential for success. Exploring new governance models would involve governance mapping (that is, disentangling the multitude of stakeholder relationships around the region, analyzing them and graphically mapping them out); examining best practices from around the world to develop a menu of possible options and ways to consider incremental improvements (which would include examination of different delivery vehicles and public/private models); and finally, applying these ideas to the San Diego context. An exploration of possible governance models would complement the policy audit (see Making it Real no. 2) and could be undertaken concurrently.

7. Identify Quick Wins

The actions listed previously will help to move the plan into implementation over the long term. Consultation with stakeholders revealed a desire to identify short-term wins that would carry the momentum of the plan forward.

The following are suggested short-term wins that could be implemented:

- Undertake the recommended policy audit (see Making it Real, no. 2). A policy audit can be completed in a short time and can demonstrate successful collaboration among stakeholders, addressing some of the issues identified relating to governance. The output of the prioritization process also can

Key step to take:

- ▶ Explore new governance models

Key step to take:

- ▶ Identify quick wins

demonstrate how investment decisions are starting to be adjusted to match the direction outlined in the plan, and it can show how investment decisions relate to wider objectives for both downtown and the region as a whole.

- Work with MTS and the business community to pilot transit incentives packages along key transit corridors. For example, offer free transit passes to new purchasers or tenants, or free Wi-Fi at station areas or on select buses or routes.
- Conduct a market segmentation study in relation to transit service to identify the types of products and services required to attract new riders to transit. This also could be targeted at key corridors.
- Conduct a demonstration project of a Paris Vélib rental bike concept to introduce the public to the idea and the supporting technology, and to identify potential implementation and regulatory challenges.
- Work toward identifying institutional and individual champions who will energize the public and governing agencies as they implement **complete community | complete mobility**.

8. Evaluate Specific Project Features

For the purposes of conducting the subsequent Environmental Impact Report (EIR) as called for in the SOFAR settlement agreement, a list of specific project features has been prepared incorporating the key elements of the complete mobility strategy as previously described. These specific project features will contribute by further defining how the downtown transportation network will look and function as the complete mobility strategy evolves. The specific project features comprising the complete mobility strategy are summarized below:

Roadways

- Limited expansion of overall road capacity beyond existing levels in the downtown and corridors serving the downtown.
- Reduced street widths where automobile capacity is not required in order to expand pedestrian and bicycling opportunities and create more “people space”.

Commuter Rail

- Increased peak period service frequencies on the Coaster, along with expanded service hours to include off peak periods.
- Extension of Coaster to Fifth Avenue/Convention Center area to serve more of the downtown area.
- Double tracking of Coaster to accommodate increased service frequencies and allow for faster and more reliable service.

Light Rail (Trolley)

- Increased service frequencies and capacities. Five minute headways on the Blue and Orange Lines and ten minute headways on the Green Line have been assumed. The five minute headways on the Blue and Orange Lines would provide a service capacity of 7,200 passengers per hour in each direction while the ten minute headway on the Green Line would provide a service capacity of

3,600 passengers per hour in each direction. These improvements will require track and signal improvements throughout the system.

- Extension of the Trolley via the Green Line to serve the Mid-Coast-Corridor.
- Connection of the Trolley to serve the Airport in order to integrate arrival facilities with both the downtown area and the broader San Diego region.

Bus Rapid Transit (BRT)

- Increased service frequencies on planned BRT routes providing a 200% increase in bus volumes above those identified in the SANDAG RTP in order to accommodate increased demand.
- Busways (grade-separated exclusive right-of-ways) at key downtown entry/exit points (SR 94, SR 163) in order to bypass congested areas, maximize operating speeds, and increase service reliability.
- Exclusive bus lanes along key corridors within downtown (such as Broadway, Market, Ash, A St.)

Local Bus

- Increase of local bus volumes by 150% in order to accommodate increased demand. This can be accommodated through both increasing frequency of existing routes and through the addition of new services.
- Even with the increase in the volume of local buses, it will be necessary to increase the capacity of the current fleet through the use of a larger number of high-capacity buses such as articulated or double-decker vehicles. This will help to manage operating costs because of the lower per passenger labor costs possible with the higher capacity vehicles.

Downtown Circulator

- Given the anticipated growth of population and employment in the downtown and the resulting higher live / work ratio, Downtown Circulator routes were assumed. These services would connect the major residential, employment, retail and entertainment (restaurants and theaters) areas in a way that would allow easy, single ride circulation for residents, workers and tourists for both intra-downtown trip making and access to regional Trolley and BRT services.

Transit Priority Treatments

- Coordination of traffic signals to favor bus and Trolley operations while maintaining a focus on pedestrian movements.
- Traffic signal priority at appropriate key locations.
- Provision of bus queue jumpers (short exclusive lanes enabling buses to accelerate in front of traffic queues).
- Enhanced bus stops and related facilities to accelerate passenger boardings and alightings. This would include minimizing or eliminating provision of bus bays by building out the passenger waiting areas to meet the through lane. This eliminates the delays to buses that are waiting to reenter the traffic stream and improves pedestrian space.

Enhanced Transit Transfer Locations

- In order to avoid the presence of idling buses, the general preference would be to not have large transit terminals in the downtown area. Where turnarounds are required they should be placed at the periphery of the downtown away from any significant land uses. Buses entering the downtown should serve transfer points and then move on. Transfer locations should be designed with the following objectives in mind:
- Facilitate passenger transfers between services in a safe, clean, comfortable, attractive, and easy to navigate environment.
- Integration with Downtown Circulator routes.
- Include real-time arrival information.
- Well integrated with adjacent land uses.
- Accommodate other businesses and activities in or nearby.
- Minimize bus layover within the downtown area by improved scheduling and maximizing through services.
- Focus layover facilities away from high value people space.

Bicycling Facilities

- Integrated network of bicycle facilities within the downtown area to accommodate local circulation by residents, bicycle commuters and tourists.
- Direct and safe connections between the downtown bicycle network and bicycle facilities that connect the surrounding neighborhoods and districts.
- Extensive use of on-street bike lanes.
- Seamless bicycle rental system (such as Paris's Velib)

Pedestrian Facilities

- Reclaiming of obsolete areas/infrastructure for parks and pedestrian areas – maximizing the amount of space for people.
- Linking all parks, retail, employment and residential areas with a complete network of pedestrian facilities.
- Maximizing the width of pedestrian circulation corridors, including consideration of pedestrian only areas.
- Strong urban design to enhance the attractiveness of the pedestrian environment and encourage use.

Parking Facilities

- Minimize growth in parking by implementing additional parking facilities only in response to demonstrated demand and redistributing parking to better service existing and planned development.
- Policies and pricing that supports short visits for shopping or errands, but discourages all-day parking by commuters.

Conclusions

The good news—San Diego has all of the basic physical, social and climatic attributes of a great city: the ocean, the geography, the weather, along with iconic buildings in downtown, and citizens who recognize these attributes. The Downtown Community Plan is designed to build on these assets and to encourage more people to live and work downtown by ensuring that the social and cultural services they require are in place.

The bad news—the proposed transportation solution for the Downtown Community Plan is not viable as it would require an additional 12 lanes of traffic in each direction to accommodate the projected growth in automobile traffic. The real dollar costs, as well as the social, economic and environmental impacts of accommodating the anticipated growth in automobile traffic on downtown streets will result in an “unbalanced” downtown, in which the quality of life, the environment and the economy are not aligned. It would also mean that the transportation system itself is not resilient and is vulnerable to events such as disasters, unrest or the current oil shock. The plan does not provide a full set of mobility choices for people to ensure that the downtown economy continues to function.

There is a solution. Downtown can be rebalanced by following a **complete community | complete mobility** strategy, which is about creating a significant change in the quality of transit and improving the environment for walking, cycling and, most importantly, living downtown. Experience elsewhere proves that people from all walks of life prefer to have choices and be able to travel by safe and convenient public transit, rather than sit in congested traffic. Such experience also shows that investing in transit and the quality of the urban environment can have real economic payoffs and is part of what makes a world-class city.

Change may be gradual, but it can and will happen. Twenty years ago there were no cafés downtown and chairs were not allowed on the sidewalks. Incremental steps can create a positive transformation of downtown, provided a vision is in place and an action plan is identified.

We have shown that a **complete community | complete mobility** solution for downtown is feasible and affordable (see Supporting Materials, pp. D42 to D56), but requires decisive action. Making it real involves realigning government actions and policies and rethinking investment priorities. A bold new vision already has been established for downtown. Implementation must be incremental, and to make the vision a reality, it will take strong commitment and setting investment priorities that embrace the principles of **complete community | complete mobility**.

The bad news is that the proposed transportation solution for the *Downtown Community Plan* is not viable as it would require an additional 12 lanes of traffic in each direction to accommodate the growth in automobile traffic.

Experiences in other cities show that investing in transit and the quality of the urban environment can have real economic payoffs and are part of what makes a world class city.

To make the vision a reality will take strong commitment and the setting of investment priorities that embrace the principles of complete community | complete mobility.

Conclusions

To the Citizens of San Diego

The **complete community | complete mobility** concept for downtown San Diego was created with the help of an international team of transportation and city building experts. The following are their observations on the challenges facing San Diego:

Professor George Hazel, OBE



Edinburgh, UK



Professor Hazel is Managing Director of MRC McLean Hazel Ltd a consultancy specializing in providing transport and urban development advice, concepts and solutions for the public and private sectors. MRC McLean Hazel is the UK and European arm of the McCormick Rankin Corporation (MRC) with offices in Edinburgh, Leeds and Brussels. George specializes in strategic urban and transport studies and his work includes the book *Making Cities Work* and the *Megacity Challenges* Report for Siemens launched at the World Economic Forum in Davos in 2007. He has recently been appointed International Advisor on congestion management to the Queensland Government in Australia.

Professor Hazel is an Honorary Professor at the Robert Gordon University, past Chair of the National Advisory Forum of Transport 2000's Reclaiming Main Roads Initiative, was a member of the Lorry Road User Charging Advisory Group and is an Advisor to Transport 2000's Policy Council and the Commission for Integrated Transport in London. He was a member of the UK Secretary of State's Steering Group on National Road User Charging and was also President of the Institution of Highways and Transportation (IHT), Chairman of the Urban Areas Committee (C10) of PIARC/the World Roads Congress and Chair of the Centre for Scottish Public Policy's Transport Commission. He was Chair of the Urban Design Alliance (UDAL) in 2005 and 2006 and in 2005 was awarded the Order of the British Empire for services to Transport.

From 1996 to 1999 George was Director of City Development for the City of Edinburgh Council responsible for planning, economic development, transportation and property. From 1993 to 1996 George was Director of Transportation for Lothian Regional Council. In Edinburgh, he introduced many interesting new initiatives including Greenways bus priority, the first car-free development in the UK, the first community car club in the UK and the reallocation of space back to people in areas like the Royal Mile in Edinburgh Old Town. From 1989 to 1993 he was a main board Director with TPA (now Faber Maunsell) where he was responsible for Scotland and UK private sector developments.

From 1979 to 1989, he was with Napier University as a transport specialist. Under his guidance the Department of Civil Engineering became one of the most important centres for transport research in the UK. In 1986 he was made Head of Department and in 1987 became the first Professor of Transportation in Scotland.

Professor Hazel graduated in 1971 in Civil Engineering from Heriot-Watt University; he remains a Chartered Civil Engineer. He also holds an MSc and PhD in Transportation.



To the Citizens of San Diego,

One of your great assets is your history which reveals a vibrant and exciting city that attracted people from all over the world. Back then it was the vibrant downtown that made San Diego an economically successful city. You still have many of the assets that made the city so attractive in the past; situated on the bay, the climate, the unique Del Coronado and Balboa Park, the lungs of the downtown.

When I arrived in the city last year, my first impressions were a mixture of excitement at being back in one of my favourite cities and disappointment at the feel of the downtown. I travel and work in many cities around the world and the first thing I do, upon arrival, is walk about the city. I did this on my first visit. It didn't start well because of the poor quality of the airport arrival point. When I walked around downtown, pedestrians were not given the priority they deserve. I had long waits at many intersections yet I was the guy with the money to spend in the downtown. There were few places to sit and people watch, unfortunately where seating was provided, it is the homeless who occupy the space. To a visitor who is unfamiliar with the city, it feels uncomfortable and threatening and yet I sympathize with the homeless. It is not an easy problem to solve but one which must be addressed if the downtown is to become a vibrant, successful part of the city and its region.

Your downtown plan has set out the right principles to establish a good foundation. Now you need to rebalance your city. People must take priority over automobiles. People must feel wanted and looked after. This means giving them space, safety and priority everywhere. Automobiles don't spend money – people do. So increase your people space, design it well, link it together and give them lots of places to sit , stay and spend – the three economic legs of a successful downtown. You've done it already in the Gaslamp and Little Italy districts – keep going.

Next, sort out your arrival points – the airport, the cruise terminal and the rail station. These are world class assets that are not celebrated. Firstly, provide a high-quality link between the airport and downtown—including redesign of the terminal. Secondly provide a high speed catamaran service to Coronado and the downtown as a fun alternative; Venice does it, the ride is expensive but what a way to arrive.

I wish you every success and I look forward to enjoying your city even more in the coming years.

A handwritten signature in black ink that reads 'George Hazel'. The signature is written in a cursive style with a long, sweeping underline.

Ken Gosselin, P. Eng. FIEAust OPEng FIHT FITE



Ottawa, Canada



Ken Gosselin is President and CEO of McCormick Rankin International and is a professional engineer by training with more than 36 years of experience in the transportation field. In 1981, he joined McCormick Rankin, a consulting firm specializing in transportation. He is a designated Consulting Engineer in Ontario, a Fellow of the Institution of Engineers Australia, a Fellow of the Institution of Highways and Transportation, UK and a Fellow of the Institute of Transportation Engineers. Ken is based in Ottawa, Canada and is usually travelling internationally about one-third of his time.

Based on his past experience, he has developed a keen interest in understanding the relationship between urban development and transportation with a particular focus on the role of public transit. Since the early 1980s, Ken has been involved in the development of the bus rapid transit. In Ottawa, for example, he was intimately involved in the planning and design of the Transitway and took a particular interest in Transit Oriented Development at the Transitway Stations and the integration of the system with adjacent developments such as shopping centres, hospitals and office parks.

Ken has carried out a number of transportation-related studies in numerous cities around the world and for four years lived in Brisbane Australia during the development of its bus rapid transit system. Early in his career, he was involved in local area traffic studies, which provided him with a clear understanding of the relationship between the automobile and community. He was later involved in route location and environmental assessment studies for major urban roads, highways and rapid transit facilities as well as strategic level studies assessing the effects and travel demands of city wide developments.

His work in Auckland New Zealand, Brisbane, Perth and Sydney Australia, Manchester and Liverpool UK and Jacksonville, Memphis, and Nashville USA has provided a basis for his understanding of the uniqueness of each city and also the common issues, problems and opportunities faced by all cities.



To the Citizens of San Diego,

I have been involved in numerous transportation-related studies around the world in my work as a professional engineer and transport planner and I can say without hesitation that the City of San Diego is one of the most interesting cities in which I have had the pleasure of working.

San Diego is a great city and has great potential—the bay, the sky, the weather, the backdrop and the downtown. Let's not ruin it by paving over its attributes to make way for the automobile. Let's not allow the automobile to dominate the downtown. Let's make it more of a people place by finding the right balance between the space required for social and cultural activities and the means of access.

The city has reached a major decision point and now must decide in which direction to move forward. This direction will undoubtedly set the course for city development for the next generation. It is on the cusp and a decision to strengthen the downtown development is the key to the future success of the city.

The *Downtown Community Plan* is moving in the right direction by proposing increased employment and residential development, now we need to find the best way for people to access the downtown.

It has been my experience that each and every city I've worked in claims uniqueness and quite rightly so. However, we are able to identify common issues, problems and opportunities that are very often present in every city. It is these commonalities that provide us with the basis for the application of the tools for solving problems. Of course, there is no one set of tools that can be applied, the planner must understand the true nature of the problem and the uniqueness of the setting before a solution can be devised.

In this study, we have looked at a number of other cities that have set their own course and have achieved success. Based on those examples we have presented a philosophy and intent, which if accepted, would set a unique course for San Diego that we believe will place your city on the preeminent list of world class cities.

Best wishes in your future endeavors.

A handwritten signature in black ink, appearing to read "K. Rankin", written in a cursive style.

Russell Chisholm



Carlsbad, CA



Russell Chisholm is President of Transportation Management & Design, Inc. and has over 25 years of experience in developing, implementing, and operating urban transit services in a variety of international and domestic cities. He spent the first half of his career in senior management and technical positions at some of the transit industry's most innovative transit systems, including Dallas, St. Louis, Nashville, Connecticut, and the Kingdom-wide profitable transit system in Saudi Arabia. Mr. Chisholm is the founder of Transportation Management & Design, Inc. (TMD) and has built the company into an industry leader in both innovative transit service development and efficient transit operations. TMD has offices in San Diego, Montreal, Chicago, Melbourne (AUS), and Oakland.

Russell has broad experience in transit planning including the development and start-up of the DART system in Dallas, Metro Moves Strategic Plan for Cincinnati's SORTA, and short-range transit plans for transit systems in San Diego, San Mateo County, Tampa, Nashville, Cleveland, St. Louis, Tucson, Lubbock, Los Angeles, and Saudi Arabia. Sustainable mobility has been a foundation of his urban transportation planning work with a focus on increasing reliance of transit, walking, and biking. Russell's recent work as part of an international expert panel reviewing Ottawa's Rapid Transit Plan involved strong recommendations adopted by the city to not only prioritize sustainable mobility modes, but to take steps to use light rail rapid transit as a "city builder" and one that would future proof the mobility needed to support Ottawa's continued economic vitality.

Russell is also a leading expert in the restructuring and optimization of both traditional and innovative bus and rail transit networks and services. He has served as Project Manager and Principal Planner for projects that range from large multi-modal, multi-operator systems, like San Diego, to small bus operations. His work encompass a variety of rail, bus, and small-vehicle operations in both traditional fixed and non-traditional flexible modes. He was the Project Manager for the successful San Diego transit restructuring undertaken with MTS.

Russell continues to be a leader in the development of bus rapid transit in the United States through his work with the acclaimed Los Angeles Metro Rapid BRT system. Mr. Chisholm has also been involved in BRT development and implementation in San Diego (I-15 corridor and Eastern Urban Center in Chula Vista), Reno (Virginia Street), Detroit (SpeedLink), LA Metro (Orange Line), Vancouver (TransLink BRT Vision), and in current project work in San Francisco (MTA/Muni TEP) and San Jose (VTA COA).

As a recipient of the Transportation Research Board's Pyke Johnson Award for his work on service development in San Diego, Russell enjoys a reputation for successful, sustainable transit mobility projects that are innovative, cost-effective, and operationally feasible.



To the Citizens of San Diego,

Through watching the city over the last 20 years of growth and challenges, I am constantly reminded that our downtown is the real center of San Diego. Centre City embraces so many of the assets that make San Diego attractive for residents and visitors alike: the Harbor and Embarcadero, Balboa Park, Horton Plaza, Santa Fe Depot, Petco Park, Lindbergh Field, and nearby Mission Bay and Coronado. The easy access to these assets has kept downtown vital through the ups and downs of the region.

The planned growth in the downtown will generate significant increases in travel to and around the downtown. The new *Downtown Community Plan* anticipates that the automobile will provide the majority of the needed new travel capacity. The amount of new downtown road and external freeway capacity required in the current plan is not economically feasible. Downtown's economic success relies on space being available for things like jobs, residences, shopping, recreation, and public space. The needed automobile space cancels out economic opportunities and is a reason why larger automobile-centric downtowns are not successful. Economically successful downtowns minimize the space needed for mobility by focusing on pedestrians, bicycles, and transit.

Following the second world war we moved from transit to the automobile. The automobile has been king and much of San Diego County developed around the automobile. That was then...this is now. We are just starting to feel the new personal mobility economics of the 21st century. The future looks very different with fast rising fuel prices and concerns over our carbon footprint and global impacts. At what point is it too early to start future proofing the long term vitality of downtown San Diego and the region?

Downtown needs to serve as the model for San Diego County. The "we can build our way out of our transportation problems" mindset is not working here in San Diego, or anywhere else long term. Solutions that focus on increasing road and parking capacity fail to address the fundamental breakdown in the relationship between land use and mobility. Land use and mobility are intertwined such that the nature of our urban and suburban areas defines the efficiency and effectiveness of our transportation systems. Downtown can lead the region by demonstrating how to balance land use and mobility to achieve both long term economic success and preservation of Centre City's unique community assets.

As a result, I believe that achieving a highly successful downtown San Diego will need a much stronger emphasis on sustainable mobility options like walking, cycling, and transit compared with the current *Downtown Community Plan*. Take the chance and redefine downtown mobility. Future generations will thank you.

Best wishes to Centre City Development Corporation and the City of San Diego.

Russell Chisholm



Brisbane, Australia



Neil Cagney, BEng (Mech), MUrb&RegPlg, GradDipAdmin, FCIT, FIEAust, FAICD

Neil Cagney is Managing Director of McCormick Rankin Cagney, a specialist transport consultancy which provides advice in the areas of urban development (including city building), strategic transport planning, transit (including strategic, operational, service, fleet, and intelligent transportation systems), executive and business development, as well as traffic and civil engineering. McCormick Rankin Cagney, with a staff of around 40 people, operates primarily in Australasia with offices throughout Australia and New Zealand.

Neil Cagney has a Bachelor in Mechanical Engineering, a Masters Degree in Urban and Regional Planning and a Graduate Diploma in Administration. He is a Fellow of the Institute of Company Directors (Australia), a Fellow of the Chartered Institute of Transport (Australia) and a Fellow of Institution of Engineers (Australia).

Recently Neil was appointed as a peer reviewer for the busway in Chongqing, China and also as a peer reviewer for Brisbane's two most recent iconic developments at Northshore and Bowen Hills. As a consultant Neil has played a role in numerous government planning and private sector developments including assisting in creating South East Queensland's transit regulator organisation, Translink, assisting in the transport component of South East Queensland's infrastructure plan and also providing key transport advice on proposed new cities of Yarrabilba and Ripley.

Previously Neil spent seven years as the Divisional Manager (CEO) of Brisbane Transport, Brisbane City Council's transport arm responsible for the city's bus and ferry operations. He also had the dual responsibility for all transport policy and planning for the city for three of those years. He was Chairman of the city's superannuation (pension) fund and an inaugural member of the city's award winning Enterprise Bargaining Unit. During this time Neil played key roles in the initiation, planning and creation of Brisbane's busway strategy and its first busway, the iconic Citycat ferry service on the river and major institutional reform within Brisbane City Council and Brisbane Transport

Prior to this role Neil had numerous senior engineering and operational roles within Brisbane Transport and also spent two years overseas including a short stint working with Volvo in Gothenburg, Sweden.



To the Citizens of San Diego,

Having now visited San Diego a number of times I am constantly struck by its warmth and openness and particularly the sense of entering a welcoming community. The natural, relaxed ambience and beauty, with its spectacular harbor and green space like Balboa Park, the all year round sunshine and clear skies, and the inclusiveness of the people, are all wonderful attributes.

Notwithstanding these strengths, San Diego, to my mind, stands at a crossroads in its evolution. This is not unlike many other cities and regions. Changing demographics, economic challenges and environmental considerations mean that the downtown needs to be planned for a more eclectic mix of people in far greater numbers. It also needs to provide opportunities for a greater level of self containment and mixed land use that supports true quality of life for people wanting to work and live downtown. This needs to occur with an eye on the optimization of the city's physical attributes and the general functionality, accessibility and mobility within the city.

While it is crucial to protect the uniqueness that is San Diego, there is the opportunity to learn from other's philosophies. Examples include the "up not out development" and "transit first" models adopted by Vancouver with spectacular success, and the environmental building codes and institutional approach which links business, community and bureaucracy alike, in Portland.

It will require courageous and coordinated leadership with a strong vision as to what is needed, to ensure San Diego is the best it can be, and it will also require the ability to stand by this vision. Not an easy task but the rewards will, I am confident, be spectacular.

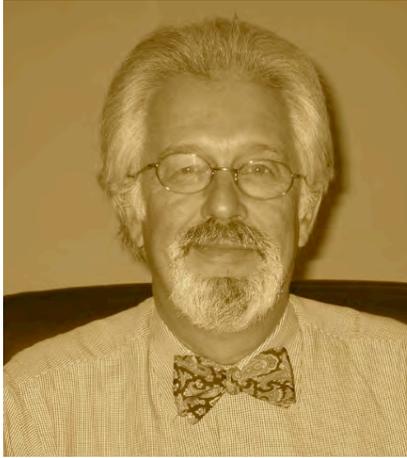
Transport is an enabler in delivering this future for San Diego, and there is a strong base upon which to build. Your light rail system can be expanded and modified as needed, and you also have well managed, quality bus operations. Prioritizing walking, cycling and transit puts people and space for people first and will give the city a fighting chance to be the city it wants to be in the future.

It has been quite special to have been a small part of the process of planning for the future in San Diego and it is clear that the people we have met and worked with have an exceptional commitment and determination to achieve an outcome that makes a difference.

I wish you all the very best in your ongoing endeavors.

A handwritten signature in black ink, appearing to read "Cagney".

John Bonsall P.Eng.



Toronto, Canada



John Bonsall began his professional career as a structural engineer but for the past 40 years he has worked in various planning and management positions in the public transport industry. He spent 20 years planning, designing and operating the busway rapid transit system in Ottawa, Canada, initially as Director of Transportation Planning and latterly as General Manager.

Between 1973 and 1980, John was responsible for the introduction of all new transit services in Ottawa, including those introduced with the regionalization of the transit system. These included an extensive network of express services, arterial bus lanes, bus malls and parkway contra-flow lanes.

As General Manager of OC Transpo between 1981 and 1993, he introduced and operated North America's most extensive and highly used busway rapid transit system. It now carries 200,000 passengers per day. During the 1970s and 1980s, OC Transpo's market share grew by 40 percent to 140 annual trips per capita. When he left OC Transpo, it carried approximately 70 percent of all peak hour downtown trips and 25 percent of all vehicle-based trips 24 hours a day, compared with 16 percent in 1972. During John's tenure as General Manager, peak period passenger kilometre productivity grew by 16 percent and OC Transpo had the highest transit mode share and revenue-to-cost ratio of all comparable sized North American cities.

In 1987, OC Transpo was selected as the best large transit system in North America by the American Public Transit Association. In 1990, John was named as Ontario's Transportation Person of the Year for his contribution to the development of innovative and successful public transit services.

John joined McCormick Rankin in 1993 as President of its international consulting business and he has participated in and been responsible for numerous transportation strategy and transit planning, design and operations studies in more than 30 different communities in Canada, the U.S., Australia, New Zealand and the UK. Among these projects was the development of the very successful and world renowned busway rapid transit plan for Brisbane and the associated rail and bus transit transportation strategy which has quantifiable transit mode share objectives.

During John's professional career he was an active member of both the Canadian Urban Transit Association (CUTA) and the American Public Transit Association (APTA). He is a past president of CUTA and served two terms as a vice president of APTA where he was also chairman of its Planning and Policy Committee. He has also been an invited participant at various specialized transit conferences in the U.S, the U.K., Finland, Spain, Saudi Arabia, Australia and New Zealand.



To the Citizens of San Diego,

Your city is blessed with an attractive natural environment and climate. This makes San Diego a desirable place for people to live and work, but your city falls short of world standards for livability. If you want San Diego's livability to improve, your downtown transportation policies must change. Walking, cycling and transit must be used more. Your *Downtown Community Plan* describes a very livable future but contains few if any transportation policies that will allow this to happen. In fact, given the heavy dependence on the automobile, it is not likely that the employment and residential levels proposed in the Community Plan will occur because of the space required for the automobile.

There are several cities in North America that have managed to reduce auto dependence in their downtowns. Downtown Vancouver, for example, despite having auto dominated suburbs, is rated one of the world's most livable cities and 60 percent of trips are now made by walking, cycling and transit. It has reduced the absolute number of automobile trips and, with increased development, the number of parking spaces per job. The growth in population and jobs has strengthened the local live-work relationship, which would not have happened if Vancouver had relied on the automobile.

San Diego is similar to Vancouver in that it has a well defined downtown area, an attractive natural environment and climate, and an adjacent major park. To have the same livability, however, San Diego needs to adopt sustainable transportation policies including no further expansion of downtown freeways, arterial roads and parking. San Diego also needs to strengthen its governance and create supportive regional organizations that permit the city to adopt non-suburban planning approaches for the downtown in contrast to the rest of the region.

In my view, what San Diego must do is obvious. For the downtown, continued freeway building including high-occupancy toll lanes is not the answer. Instead, you need a strong commitment to better public transit through a well thought out strategic plan that makes improving transit a priority. This can be done by setting transit mode share targets by corridor to achieve an overall 50 percent peak period transit share. To achieve this, you will need to improve the Trolley service and create a high-end bus rapid transit network of exclusive busways with on-line stations.

If there is sufficient community commitment to real change, there is no doubt that San Diego could be added to the list of the most livable cities in North America. It would be tragic if San Diego fails to grasp this opportunity because it already has so much going for it.

Tom Middlebrook, P.Eng.



Toronto, Canada



Tom Middlebrook is an international transit advisor within McCormick Rankin Corporation's Transit division. Tom has over 25 years of experience in planning, designing, building, managing and operating major transit projects and systems. He joined McCormick Rankin Corporation in 2006 and since being with the firm has worked on a variety of projects including bus rapid transit, light rail transit and heavy rail transit. His recent work has been focused on working with clients to increase transit mode share through city planning and re-balancing initiatives as well as program and strategic oversight of design and implementation of a bus rapid transit system as well as a subway expansion program in the Greater Toronto Area.

As Chief Engineer of the Toronto Transit Commission from 1998 to 2006, Tom was responsible for planning, environmental assessment, design, construction, project control and project management of all capital project and contracts for major system renovations, new transit facilities and rapid transit lines. The range of transit services included bus, streetcar and subway. For seven years prior to being Chief Engineer, Tom was responsible for planning and construction of subway and light rail systems and maintenance facilities.

Tom also has over nine years of direct rail operations experience where he held increasingly greater positions of responsibility in light and heavy rail track maintenance as well as heavy rail and railcar maintenance.

Tom has been interested in sustainability practices for some time and was the leader at the Toronto Transit Commission for corporate sustainability. He is a member of McCormick Rankin Corporation's sustainability team and is committed to doing what he can to reduce human impact on the environment.



To the Citizens of San Diego,

Congratulations on your efforts to define the future for downtown San Diego. In my research and readings, one thing is for certain: San Diegans want a downtown where people live, work and play. The changes are taking place already, however, the next steps are precarious. Clearly it is our contention that to provide the kind of downtown that San Diegans want, public transit has to play a much greater role and the trolley is a key player.

Recent studies have focused on C Street and because of the existing problems, a number of alternatives have been contemplated, which would result in either moving the trolley tracks to the north and reinstating automobile traffic or removing the trolley altogether and replacing it with a C Street bus shuttle. In my opinion, this would be counter productive to the overall goal of achieving a much higher transit modal share. I do not believe that the current C street problems are directly related to the trolley – it is far more complicated than that. While the current track bed condition is deplorable, it is the institutional land uses, such as a maximum security jail and bail bonds shops that create a negative environment for pedestrian activity. Where traffic lanes have been provided or barriers and planters have been installed, undesirable areas have been created for pedestrians.

It may seem counterintuitive but in fact what is needed is the creation of pedestrian friendly areas co-mingled with the trolley operation. Many of the barriers that have been installed should be removed and the street cross section from building face to building face opened up for walking. Bring the pedestrian areas to the trolley edge like you have between India and Columbia. Scatter the sidewalks with chairs like you have in Little Italy. Create cafés that have the outdoor ambiance and urban feel of the trolley passing by. By encouraging pedestrian activity such as shopping and eating, it will in turn discourage homeless people from visiting these areas.

The San Diego Trolley is as unique as San Diego's Balboa Park, Zoo, Waterfront, Little Italy and Santa Fe Depot. It needs to be enhanced not hidden, C Street provides an opportunity.

I wish you much success.

A handwritten signature in black ink, appearing to read 'Aislinn', written in a cursive style.

Downtown San Diego

complete community | complete mobility

Centre City Development Corporation | September 2008

Supporting Materials

Downtown San Diego

complete community | mobility

September 2008

Prepared for: Centre City Development Corporation

Prepared by:

McCormick Rankin

Transportation Management & Design



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INTRODUCTION

In February 2006, the City of San Diego's City Council established new land use and growth policies for the downtown by adopting the San Diego Downtown Community Plan, and a new zoning ordinance. Following the adoption of the plan, Save Our Forests and Ranchlands (SOFAR) challenged the Centre City Development Corporation (CCDC) and the City of San Diego's compliance with the California Environmental Quality Act (CEQA). Through the course of settlement discussions, the parties agreed to work together to prepare a "Transit Alternative" to the traffic and transit elements of the 2006 Downtown Plan.

The CCDC retained the consultant firm of McCormick Rankin US Inc (MRUS) to complete the San Diego Downtown Transit Alternative Plan Study. The scope of work for the study included a number of deliverables documenting the various phases of the project. These are listed below.

- Case Study Assessment
- San Diego Background Review
- Development and Evaluation of Alternatives
- Development of Three Alternative Strategy Packages
- Evaluation of Selected Alternative Strategy Packages
- Preferred Downtown Transit Alternative Plan
- Phasing of Downtown Development

The following sections of this report summarize the intent of each deliverable as well as the individual reports (attached as appendices) that were developed to address them.

CASE STUDY ASSESSMENT

The purpose of the case study assessment was to obtain lessons learned from other jurisdictions and organizations within the United States and internationally in order to provide insight into how other municipalities of comparable size have faced similar challenges to San Diego and have transitioned from a predominantly auto-oriented to a transit and pedestrian oriented downtown. The cities selected for the case study assessment have either managed a similar transition to what San Diego is contemplating or are in some way comparable and have policies or strategies in place that support transit and which may be applicable to San Diego.

A total of 15 cities were examined, with a focus on 4 cities with the most relevant programs and policies:

- Bordeaux, France;
- Brisbane, Australia;
- Portland, Oregon, and
- Vancouver, Canada.

The complete Case Study Assessment is included in Appendix A.

BACKGROUND DOCUMENTATION REVIEW

As part of the San Diego Downtown Alternative Transit Plan Study, a review of existing background information was undertaken. At the onset of the study, information was provided from various sources including San Diego's regional planning agency (SANDAG), and CCDC. Previous transit and transportation studies as well as information related to the downtown development and growth projections were assembled.

Transportation Management and Design inc. (TMD) of San Diego, as part of the MRUS team, provided additional information regarding population and employment growth, commuter travel patterns, parking, cyclists, and pedestrians.

The Metropolitan Transit System (MTS) also provided information about their transit vision and the area's transit services.

Data that was provided by SANDAG was incorporated into an EMME3 travel demand forecasting application to identify trends and issues related to transportation in and around downtown San Diego.

The resulting Background Documentation Review is included in Appendix B.

DEVELOPMENT AND EVALUATION OF ALTERNATIVES

The McCormick Rankin team assembled in San Diego for a workshop conducted from the 21st to 23rd of January 2008. The purpose of the workshop was to bring all of the team members to a common level of understanding regarding the issues in downtown San Diego and to develop alternatives and ideas for consideration. This included opportunities for transit, parking, cycling, and pedestrian facilities.

Transit opportunities have been previously listed in various San Diego documents, such as the Regional Transportation Plan (RTP). As the purpose of the workshop was to take a high level view of the potential for transit, it was determined that indentifying additional transit opportunities over and above those already identified in the RTP would be unnecessary at this stage in the project.

Prior to the workshop, a brief overview of issues in downtown San Diego was prepared. The document also included an "Ideas Bank" of possible transit supportive opportunities for parking, cycling, and pedestrians, that San Diego may consider or options that San Diego is employing but could expand further to address the identified issue. The "Ideas Bank" provided a simple summary sheet of possible enhancement measures with examples of where they have been used. It served as a basis for discussion during the January 2008 Workshop.

The following is the list of alternative measures that address Parking, Pedestrians and Cyclists.

Parking

- Reduced Parking Requirements
 - Reduced minimums
 - Reduced maximums
- Parking Management
 - Shared parking facilities
 - Residential permit parking
 - Preferential treatment
- Unbundled parking
- Parking Technology
 - Payment technology
 - Availability technology
- Parking Pricing
 - Variable Rate parking pricing

- Coordinated off-street/on-street
- Occupancy tax
- Cash-out
- Credit program
- Discounts for carpools

Pedestrian & Cycling

- Multi-Modal Planning
 - Complete streets
 - Network connectivity
 - Bike boxes
- Transit Integration
 - Improved access
- Cycling Measures
 - Shared bicycles
 - Park and ride (bike)
- Planning / Monitoring
 - “Accessibility Planning”

The workshop included a tour of downtown San Diego as well as key transit facilities to familiarize the team with the existing conditions. The team was joined by various planning and engineering staff from CCDG, City of San Diego and the local transit agency MTS, providing further input on the “existing conditions” for San Diego.

Key points noted by the group regarding the existing conditions were:

- The current transit system has received a significant revision over the last two years, improving the effectiveness of the MTS bus system in particular; this mode has a much lower profile than the trolley light rail system.
- The MTS transit system continues to be forced to reduce service and raise fares in response to ongoing funding shortfalls.
- Downtown has significant competition for employment with a number of regional centers.
- Population is dispersed throughout a wide regional area, with many downtown employees living well beyond the San Diego urban core, even outside the County.

With a clear understanding of the issues, the team discussed the opportunities for enhancement of bicycle, pedestrian, transit and parking facilities. The measures that were identified from the Case Studies and listed above were discussed within the context of downtown San Diego.

A detailed summary of activities conducted at the January Workshop including the “Ideas Bank” is included in Appendix C.

DEVELOPMENT OF THREE ALTERNATIVE STRATEGY PACKAGES

One clear theme emerging from the January Workshop session was the need for more “exchange” or people space, between the employment and residential functions and transportation in downtown San Diego. This high value (Exchange) space is where people interact every day; where transactions occur, where money is spent; where friends meet to shop and talk. It is the most important space that a city has as this space drives the economy of the city. Maximizing the people space in a city, particularly in the downtown is the key to achieving the more people-oriented downtown environment implied by the goals of San Diego’s Downtown Community Plan. The challenge is that the amount of people space can usually only be increased by reducing the amount of movement space.

Today most of the movement space in downtown San Diego is road space dedicated to the automobile. The result is that while the downtown road system generally operates at an adequate level



of service during the peak periods, the amount of downtown exchange space available today is much less than that typically found in other “world class” cities. The amount of movement space can only be reduced by giving greater priority to the transportation modes that require less space than the automobile such as walking, biking and transit.

The transportation analysis of the *Downtown Community Plan* undertaken by Wilson & Company concluded that in the absence of significant transit use improvements, major road capacity increases would be required at the downtown boundary.

It is not clear how much new road capacity can be added without creating enormous environmental impacts on the Downtown. In these circumstances, it may be difficult if not impossible to add much of the required road capacity. This in turn could mean that the existing road capacity will effectively limit the amount of new development that can take place in the Downtown.

There are, therefore, three possible different futures facing Downtown San Diego:

1. The *Road Expansion Strategy* implied by the Regional Transportation Plan (RTP) and Downtown Community Plan, including the construction impact of major new road capacity into the downtown.
2. A *Low Growth Strategy*, including the addition of no new road capacity and minor improvements to the existing transit service as per the RTP. The current balance between movement and exchange space would be modified where possible with little or no real impact on the auto level of service. This strategy would result in modest increases in population and employment.
3. A *Complete Mobility Strategy* that recognizes that the land use and quality of life goals of the Downtown Community Plan can only be realized by rebalancing the auto commuting in and out of the downtown with travel by transit, bicycle and pedestrians and improvement in people space.

The implications of each of the three strategies were discussed at a March 17-19, 2008 workshop session held in San Diego. A summary of activities conducted at the March Workshop is included in Appendix D. This includes a detailed discussion of the evolution and issues surrounding the three strategies.

EVALUATION OF SELECTED ALTERNATIVE STRATEGY PACKAGES

Building on the March 2008 workshop a series of analysis activities were undertaken to assess the implications of the three strategies discussed in the previous section. The purpose of the activity was to identify the preferred alternative strategy.

The detailed discussion of the three strategies that is included in Appendix D provides a thorough discussion of the reasons that the *Complete Mobility Strategy* is the only real alternative that allows for the goals and objectives of the Downtown Community Plan to be achieved without the expensive and environmentally destructive implications of the *Roadway Expansion Strategy*.

The Complete Mobility Strategy emphasizes that a set of transit mode share targets are necessary and describes one representative approach that can achieve these proposed targets.

PREFERRED DOWNTOWN TRANSIT ALTERNATIVE PLAN

The preferred downtown transit alternative plan is documented in a separate report entitled “*Downtown San Diego – Complete Community, Complete Mobility*”. All of the background material described in the previous sections supports this document as does a memorandum addressing potential funding approaches that is provided in Appendix E.

PHASING OF DOWNTOWN DEVELOPMENT

The purpose of this activity was to investigate best practices related to growth and development phasing programs, policies and regulations that have been adopted in other places and to discuss their applicability for San Diego. The specific outcome was to identify how the level of development within a downtown area could be managed in concert with the available capacity and operations of the transportation network. The memorandum contained in Appendix F documents this work.

Appendix A

Case Study Assessment

Appendix A – Case Study Assessment

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1. INTRODUCTION

San Diego is considering the transformation of its downtown from one that is predominantly auto oriented and largely a work destination to one that is transit and pedestrian friendly and that is positioned firmly as the economic and social center of the region. Other cities have successfully undertaken this transition and valuable lessons can be learned from their experiences. This report outlines experiences in other cities and highlights key points of success that they share. A total of 15 cities were examined, with a focus on experiences most relevant to San Diego from the cities of Bordeaux, France; Vancouver, Canada; Portland, Oregon, and Brisbane, Australia.

Key findings are highlighted below with an overview of the methodology and city profiles following.

1.1. KEY FINDINGS

Cities that have successfully transformed their downtowns have taken a number of actions, in terms of transportation, ranging from changing the relative priority of sustainable modes within the downtown to more restrictive parking levels and regulations. The following are the key success factors drawn from the case study cities:

- Leadership and vision: The successful cities have clearly articulated policies or strategies based on political and/or institutional leadership (e.g. the “Livable Region” planning concept has permeated all planning actions in the Vancouver region for the last 30 years driven by strong individual and institutional leadership).
- Public expectations: Successful cities have had public support, and indeed public pressure to change priorities in the downtown. The causal relationship between this and leadership and vision is difficult to ascertain, but both are essential.
- Quality of life: In the cities studied, transportation investment and decision-making are viewed as policy levers capable of addressing broader city objectives. Quality of life is one of these objectives and is a major driver in transportation investment decisions. It influences investment in transit through an emphasis on quality urban design, pedestrian-friendly spaces, quality transit service, and linkages to land use and revitalization of areas.
- Leveraging of local assets/events: Cities have been able to extend the quality of their transportation systems by leveraging on an event and/or amenity to regenerate the downtown. For example, Expos in both Brisbane and Vancouver coupled with beautiful natural settings.
- Reallocation of right of way space: Cities have made conscious decisions to reallocate road space in the downtown to provide greater emphasis on sustainable modes and greater opportunity for quality urban spaces. Bordeaux, for example, has a policy to limit the right of way space allocated to vehicles to a maximum of 50%.
- Visible transit investment in the context of reduced emphasis on enhancing road capacity. For example, major new tram lines in Bordeaux; downtown tram, regional rail, and bus mall in Portland while limiting investment in freeways.
- Integrated transportation choices. The successful cities show a wide range of transportation choices that support both regional and local movements.

More specific findings on policies and actions of the cities studied are provided in the following sections.

2. CASE STUDY ANALYSIS

The objective of the case study assessment is to obtain lessons learned from other cities, in the US and overseas, in order to provide insights that can guide San Diego in transitioning from a predominantly auto oriented downtown to one that is transit and pedestrian friendly. The cities selected have either managed a similar transition to what San Diego is contemplating or are in some way comparable and have policies or strategies in place that support transit and which may be applicable to San Diego.

2.1. CASE STUDIES

Fourteen case study cities were identified, as listed below:

- Dallas, USA
- Minneapolis, USA
- Cleveland, USA
- Denver, USA
- **Portland, USA**
- **Vancouver, Canada**
- Toronto, Canada
- Ottawa, Canada
- **Brisbane, Australia**
- Munich, Germany
- Nantes, France
- **Bordeaux, France**
- Brussels, Belgium
- Rome, Italy

A brief description of the transportation system for each city reviewed is provided in Appendix A1. A common set of criteria and indicators were developed for comparison of the case study cities with San Diego as shown in the following table. The data was derived from a wide variety of sources and therefore caution should be exercised when making specific and direct comparisons.

Four of these cities were selected for more detailed examination, including Portland, Vancouver, Bordeaux and Brisbane (shown in bold in the above list). Description of the transportation system for each selected city is provided in Appendix A2.

Case Study Comparators and Indicators

Criteria	San Diego
Robust Regional Transit (Rail)	Light Rail yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes
Special CBD Transit Circulation	-
CBD Transit Hub(s)	Santa Fe Depot
Peripheral Hub with Forced Transfer	-
Strong Downtown Business	Yes
Strong Downtown Residential	Yes
Downtown Sports Venues	Yes
Downtown Arts	Yes
Downtown Area Schools	Yes
Strong Pedestrian Orientation	Yes
Strong Bicycle Orientation	½
Population	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	13 (City)
Riders per capita	31
Sustainable transportation mode share (transit, walking, cycling)	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	5.76%
Parking spaces per 1000 jobs in CBD	767.4

2.2. FEATURES AND STRATEGIES

For the four cities that were examined in more detail, key features and strategies employed to encourage greater use of sustainable modes in the downtown were further investigated and are summarized below. For each feature or strategy listed, a representative city (or cities) is listed. The reference to a particular city is based on the findings of the research and where a specific feature or strategy was clearly evident in a city. These are not necessarily unique to the city (-ies) listed and may well exist in the other cities referenced.

2.2.1. Economy and Planning

- A highly quality downtown in terms of the urban environment, design, amenity and livability. (Vancouver)
- Transitioned from an abandoned downtown area in the evening to dense and vibrant center where people live, play, and work. (Portland, Vancouver)
- Regenerated industrial land near CBD (False Creek, Vancouver)

- Pedestrian mall in the heart of the CBD retail core supporting CBD as a vibrant seven day a week location. (Queen St., Brisbane)
- Planning institutions, and a planning culture, that encourage transportation and land use to be thought about together. (Portland, Vancouver)
- Commuter choice programs. (Bordeaux, Portland)
- Major event spurring investment (Vancouver (Expo), Brisbane (Expo and Commonwealth Games))

2.2.2. Parking

- Increased development and decline in the number of parking spaces per job. (Vancouver)
- Policies that limit the growth of parking downtown, including pricing that supports short visits for shopping and errands but discourages all-day parking by commuters. (Portland and Brisbane)

2.2.3. Transit

- An integrated public transit system and an extensive bus network, all operating under a single agency with integrated fares. (Portland, Bordeaux)
- A Transit Mall, two streets through the center of the city largely reserved for buses. (Portland, Vancouver)
- A downtown free-fare zone, permitting bus and rail services to be used without charge for short trips within the downtown. (Portland)
- Park-and-ride at strategic locations. (Bordeaux)
- Innovative LRT ground level power supply system. (Bordeaux)
- Major regional transit links to CDB (All cities) and regional nodes.
- Alternate strategies on roadway configuration: conversion to two-way operation to allow for simplified and full transit access (Bordeaux), retained one-way operation to allow for the taking of lanes and reduction of vehicular capacity to allow for enhanced pedestrian facilities (Brisbane).

2.2.4. Pedestrians

- Walking as a growing mode demonstrating that a pedestrian-oriented downtown is achievable in a typical suburban regional setting. (Vancouver)
- Policies that manage downtown street space for all modes, giving appropriate priority to transit and bicycles, with a primary focus on the pedestrian. (Portland and Bordeaux)
- Improved walk-ability and connectivity through streetscaping and green spaces. Reclaiming obsolete car-based transportation infrastructure for parks and pedestrian spaces. (Portland and Bordeaux)
- Widening of the inner city footpaths and development of “green bridges”, leading to the development of natural canopies, outside dining areas, street art, shades, shelters. (Brisbane)

2.2.5. Cycling

- An extensive region-wide bicycle network, with policies to encourage cycling. (Portland, Bordeaux, Vancouver)
- Extensive cycling and pedestrian network expansion (Bordeaux)
- Seamless bicycle rental systems (Bordeaux)

2.2.6. Car mode share reduction

- Car-sharing programs, web-sites and car-sharing company development. (Portland, Bordeaux, Brisbane)
- Car-free zones. (Bordeaux)
- Program a "Day without Cars" complemented with cultural and sports activities for pedestrians, cyclists and rollerbladers. (Bordeaux)

2.2.7. Other transportation modes

- Introduction of the City Cat ferry system which has seen patronage increase from 400,000 passengers / year to over 4 million passengers per year. (Brisbane)

Appendix A1 – Case Study City Summaries

The following pages provide case study summaries. The case studies for the cities for more detailed examination are included in Appendix A2.

- Dallas, USA
- Minneapolis, USA
- Cleveland, USA
- Denver, USA
- Toronto, Canada
- Ottawa, Canada
- Munich, Germany
- Nantes, France
- Brussels, Belgium
- Rome, Italy

Brief Case Study: Dallas, USA



Criteria	Dallas	San Diego
Robust Regional Transit (Rail)	LRT, Commuter Rail	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Reduced downtown zone fare good only on light rail	
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	Yes (selected lines)	
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Small but growing	Yes
Downtown Sports Venues	Yes ¹	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Some	Yes
Strong Pedestrian Orientation		Yes
Strong Bicycle Orientation		Some
Population	6.0 M(Metro area) 1.2 M(City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	15.6 (City)	13 (City)
Riders per capita	53 (based on 63,802,500 annual unlinked trips - source: APTA)	31
Sustainable transportation mode share (transit, walking, cycling)	Transit 3.6% Walk 1.7% Other 1.1%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	10.7%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	3.6% (2010 est.)	5.76%
Parking spaces per 1000 jobs in CBD	506.4	767.4

¹ American Airlines Arena is not considered as part of the downtown Dallas area. It now lies adjacent to the West End District north of downtown. Reunion Arena in downtown continues to operate with smaller events.

Brief description of the transportation system

The Dallas Area Rapid Transit (DART) system is a multi-modal system made up of light rail and commuter rail, bus, and paratransit services, serving a 700 square mile service area serving Dallas and twelve surrounding cities.

The light rail system currently has four lines operating through downtown Dallas with two more currently under construction. The current system includes 45 route miles with 35 stations, with six stations located in downtown Dallas. The rail system will nearly double its size by 2014 with the addition of the 17.5-mile Northwest extension, the 10.2-mile Southeast extension, and the 13-mile Northwest branch to Las Colinas and DFW Airport.

The Trinity Railway Express operates commuter rail service six days a week between downtown Fort Worth and Dallas via Richland Hills, Centreport, and DFW Airport, Irving, Medical Center, and American Airlines Center. Commuter rail and light rail located adjacent to each other at Union Station to provide seamless transfer as the case in San Diego at both Santa Fe Depot and Old Town.

There are 130 bus routes that operate in the DART system. There are two downtown transit centers that are served by 31 local/limited stop routes and nine suburban express routes.

In addition to ADA paratransit service, DART operates “DART On-Call” personalized curb-to-curb demand responsive transit service. This special shared-ride van service is used in areas where rider demand is too low for regularly scheduled bus routes. DART On-Call provides service to transit centers, shopping, and other destinations within a defined service area.

DART operates a 31 mile interim HOV lane network in four corridors. Two of the corridors operate to downtown Dallas, one from the east (“zipper” contraflow lane like the Coronado Bridge) and one from the south. Plans call for expanding the HOV network to 110 miles of permanent lanes with two additional corridors serving downtown Dallas.

Bicycle paths

Bicycles are allowed on all rail services at all times. Bicycles are also carried on buses but there are no dedicated bike racks on the buses so all bikes need to be carried inside the bus when space is available. In San Diego, bikes are allowed on all Coasters, trolleys, and buses. Bicycle lockers are also available at many transit centers and rail stations, but none in the downtown area.

There are no bike paths or designated bike lanes or routes through the core of downtown. The nearest bike path is the Katy Bike Trail. This trail starts in the vicinity of the American Airlines Arena and extends on through to the Mockingbird light rail station.

Pedestrian

There are two miles of underground and one mile of elevated pedestrian walkways that provides access to nearly 250 restaurants, stores, and retail services. Most of the tunnels connect buildings within the City Center and Main Street districts. Most of the businesses in the underground tunnels do not stay open past 6pm.

The Downtown Improvement District has recently spent \$3.5 million on streetscape enhancements to make five north/south streets in downtown more pedestrian friendly.

The Trinity River Project aims to turn the Trinity River's path into a collection of sports fields, trails, nature centers, and recreational opportunities. It has been billed as the largest urban park in the United States. Part of the construction will also include building three new bridges over the Trinity River. The first bridge began construction in 2005 and will connect the Woodall Rodgers Freeway in downtown to Singleton Avenue in the west.

The City of Dallas has developed a Downtown Parks Master Plan that identifies major new open spaces in downtown. By strategically dispersing these parks downtown and linking them with streetscape improvements, the city intends to maximize the overall pedestrian experience and significantly increase development opportunities across a wider area. The enhanced pedestrian network is coordinated with an ongoing transportation plan for both cars and light-rail.

The city is also pushing for the development of a deck park over the Woodall Rodgers Freeway. This park would create a seamless connection between the Uptown and Downtown districts.

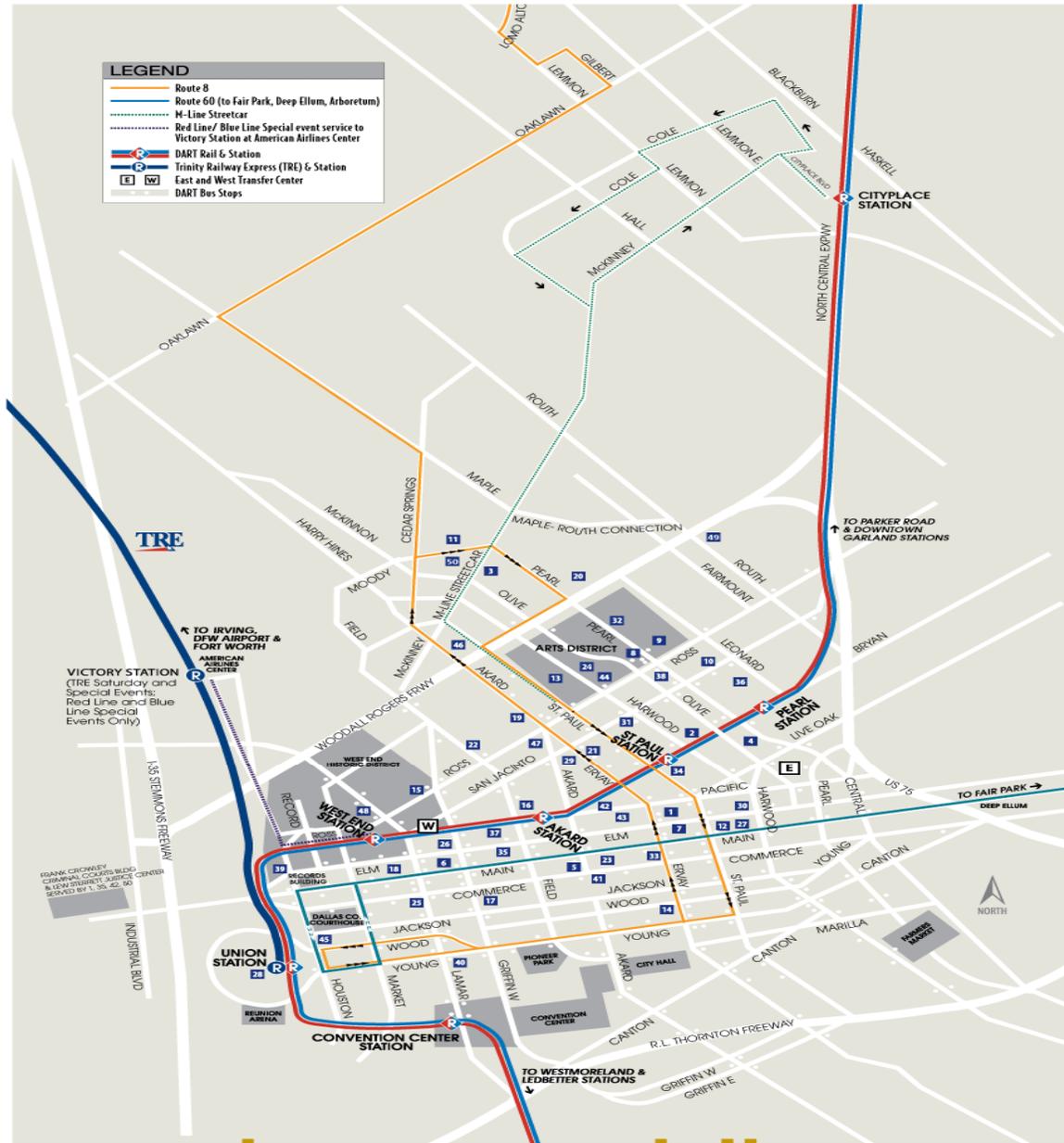
Alternative Transportation

The McKinney Avenue Trolley is a 3.9 mile line that links downtown with the Uptown district and Cityplace Station.

Similarities/Dissimilarities with San Diego

- Robust transit system (multi-modal)
- Mix of schools, arts and culture, convention center and government and commercial office spaces.
- Downtown Dallas is becoming a mixed-use area. Soon after DART opened its first rail operations in 1996, a steady stream of renovations began in empty office buildings downtown. The trend continues today, notably now including residential developments. About 3,500 people already live in downtown proper, and that's expected to double within a year-and-a-half and nearly triple by 2010.
- Comparable city population density
- Comparable amount of downtown parking
- Lack of significant retail activity in downtown; especially that needed to support residential community.
- American Airlines Center is now on the fringe of the downtown core and not in the CBD area like Reunion Arena downtown is still served by both light rail and commuter rail.
- Dallas did have a successful downtown circulator (Hop-A-Bus) prior to the start-up of rail. However, with the start of rail, different versions of downtown circulators have been tried and have not generally succeeded. Most lunchtime ridership takes place using rail. The lack of residential and tourist related trip making also does not provide opportunities for a circulator route to succeed.
- Lack of bicycle lanes throughout downtown.
- Impact of twin city of Fort Worth on regional travel.
- Higher regional population.
- Lower percentage of jobs downtown.
- Smaller transit service area.

Dallas Transit Map



downtown dallas points of interest

- | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> 2 2001 Bryan Tower 3 2100 McKinney 4 A. Maceo Smith Federal Building 4 Adams Mark Hotel 5 Adolphus Hotel 6 Advancial Tower 7 AT&T Plaza 8 Bank of America Building 9 Belo Mansion 10 Cathedral & Santuario de Guadalupe 11 Chase Tower 12 Comerica Bank Tower 13 Crescent Court 14 Dallas Education Center 15 Dallas Museum of Art 16 Dallas Public Library 17 Dallas World Aquarium | <ul style="list-style-type: none"> 1 DART fast pass (Elm & Ervay) 16 DART Headquarters/DART Store 17 Earl Cabell Federal Building 18 El Centro College 19 Fairmont Hotel 20 Federal Reserve Bank of Dallas 21 First Baptist Church 22 Fountain Place Tower 25 Greyhound Terminal 27 Hotel Indigo 45 Hotel Lawrence 28 Hyatt Regency Dallas Hotel 29 Lincoln Plaza 23 Magnolia Hotel 30 Majestic Theatre 31 Maxus Energy Tower 32 Meyerson Symphony Center | <ul style="list-style-type: none"> 24 Nasher Sculpture Center 33 Neiman Marcus 49 One Arts Plaza 34 One Dallas Center 35 One Main Place 36 Plaza of the Americas/Westin City Center 37 Renaissance Tower 50 Ritz-Carlton 38 San Jacinto Tower 39 Sixth Floor Museum/Dealey Plaza 48 Spring Hill Suites 42 Thanks-Giving Square 43 Thanksgiving Tower 44 Trammell Crow Center 26 West End Hotel 47 YMCA Building |
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MCCORMICK RANKIN US INC



Brief Case Study: Minneapolis, USA



Criteria	Minneapolis	San Diego
Robust Regional Transit (Rail)	LRT (Hiawatha) with 2 nd line planned (University); Commuter rail also in planning	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Downtown reduced fare (50c) zone	
CBD Transit Hub(s)	Nicollet Mall	Santa Fe Depot
Peripheral Hub with Forced Transfer	Several unforced hubs	
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Some	Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	1.12M(Metro area – 556 square miles) 0.373M(City – 55 square miles)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	26 (City)	13 (City)
Riders per capita	197.7	31
Sustainable transportation mode share (transit, walking, cycling)	Transit 7% ² Walk 2% Cycling <1%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	11.6%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	51% (of City), 8% (of Twin Cities)	5.76%
Parking spaces per 1000 jobs in CBD	183.8	767.4

² Figures based on 2006 Resident Survey for entire region on percentage of people who commute to work. Transit is split between 6% for bus and <1% for light rail. Ridesharing is 7%.

Brief description of the transportation system

Metro Transit operates the Hiawatha light-rail line and 208 bus routes serving Minneapolis, St. Paul and surrounding suburban cities. Metro currently operates 116 bus routes through downtown Minneapolis of which only 20 operate throughout the day.

The Metro fleet consists of 821 buses (140 artic, 681 standard – all with wheelchair access/bike racks) as well as 24 light rail vehicles for 12-mile, 17-station Hiawatha LRT line (opened 2004).

Metro is also developing a Hi-Frequency network with routes running every 15 minutes or better throughout the day on weekdays and Saturdays. Currently nine bus routes and the light rail have a 15-minute frequency over at least the core of their lines.

Metro is currently working on completion of three rail projects:

- Metro recently received a Federal grant to complete the Northstar Commuter Line that will operate between downtown Minneapolis and Big Lake along BNSF tracks. The line is expected to start operating in 2010.
- The existing Hiawatha LRT line will be extended three blocks to a new intermodal station at 5th Avenue North. This will allow for easy transfer between commuter rail, light rail, and buses.
- The existing Hiawatha line will be extended along a new alignment to St. Paul. The Central Corridor LRT line will connect downtown Minneapolis and downtown St. Paul along University and Washington Avenues through the State Capitol complex, Midway area, and the University of Minnesota. Construction is expected to start in 2010 with the start of operations in 2014.

Other bus improvements include Bus Rapid Transit projects along Bottineau Boulevard between downtown Minneapolis and Brooklyn Park/Osseo and on I-35W between Lakeville and downtown Minneapolis.

In addition to ADA paratransit service, Metro also provides Dial-A-Ride service in smaller suburban communities and adjacent counties. Levels of service vary by service provider.

Downtown Transit

Downtown Minneapolis includes the County Medical Center and Health Services and the Community and Technical College, as well as various Federal and County government offices. There are a number of performing arts theaters, and retail including the Target Center at the western end of downtown. There is the Metrodome stadium in the east, as well as the Convention Center and Loring Park in the south. The southern edge of the downtown is partly defined by the I-94 freeway, while the northern edge is bounded by the Mississippi River.

The primary northeast/southwest transit corridors that run through downtown Minneapolis operate along 4th, 6th, and 7th, and light rail along 5th. The primary northwest/southeast corridors are the Nicollet Transit Mall that crosses over the Central Avenue Bridge, and Hennepin.

There are four downtown transit centers around the various edges of downtown as well as four light rail stations located across its east-west alignment throughout downtown. The four downtown transit centers are focused on intercepting arriving car traffic, offering significant parking and good transit service through downtown. There is a Downtown Zone fare of 50 cents that applies for both buses and light rail, to help promote taking transit from the parking garages at these transit centers.

Pedestrian

The most popular element of pedestrian access throughout downtown Minneapolis is the network of pedestrian walkways referred to as Skyways. The Skyway network leads from second or third floors of buildings to the corresponding levels in other buildings across the street. Skyways open and close at hours based on the needs of the owners of buildings on either end of each Skyways. The benefit of the skyway system is obvious for the brutal winter conditions in Minneapolis when Skyway use is high, providing a great incentive for increasing pedestrian mobility throughout the downtown. Street level pedestrian activity is very strong even in off-peak periods during good weather.

The City's pedestrian program also includes providing funding for pedestrian support and safety, with special community interest in the installation of pedestrian level lighting around neighbourhood streets after nightfall.

Bicycles

Bicycle use in Minneapolis is being encouraged as a year around activity. There is a strong bicycle lane network throughout the entire downtown area that covers major streets and links with the regional bicycle lane network. Minneapolis also has an extensive network of bicycle racks and lockers scattered throughout the entire downtown area. Showers are also available with the rental of a bicycle locker at two locations in downtown. The city developed a program in which it pays for half the cost of both new bicycle racks and their installation.

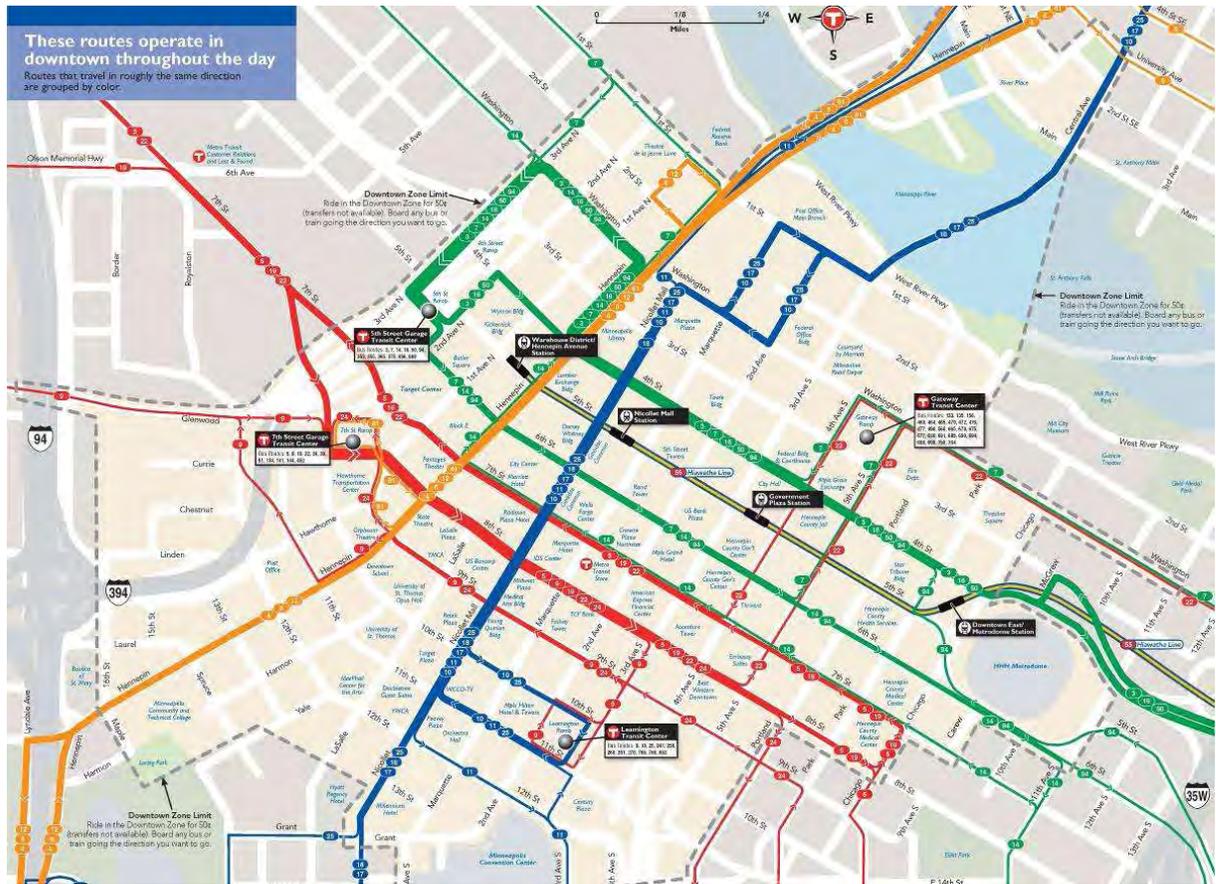
The city also received a Federal grant through the Non Motorized Transportation Pilot Program (NTP) to demonstrate the extent to which bicycling and walking can carry a more significant part of the transportation load. The first project funded through this program is the Bicycle & Pedestrian Ambassador Program, with staff to work in Minneapolis and the surrounding 13 communities to increase bicycling, walking, and roadway safety.

All buses are equipped with bicycle racks and each light rail car has four bicycle hangers.

Similarities/Dissimilarities with San Diego

- Small but fast growing downtown residential population
- Riverfront district
- Skyway pedestrian access that allows year-round use; strong street level pedestrian activity in good weather
- Active downtown area that includes both day and evening uses
- Active bicycle program promoting expanded bicycle use
- Support for sustainable transportation options
- Support for transit oriented development including integrated transit shelters in buildings
- Much higher proportion of city jobs in downtown
- Far less parking per 1000 jobs in downtown
- Smaller city and county areas and populations but higher city population density
- Much greater ridership per capita
- Complexity added by close proximity of twin city of St. Paul

Minneapolis Transit Map



Brief Case Study: Cleveland, USA



Criteria	Cleveland	San Diego
Robust Regional Transit (Rail)	Both Heavy Rail and LRT	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Yes	
CBD Transit Hub(s)	Tower City Station	Santa Fe Depot
Peripheral Hub with Forced Transfer		
Strong Downtown Business	Some	Yes
Strong Downtown Residential	Some	Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation		Yes
Strong Bicycle Orientation		Some
Population	2.11M (MSA) 0.44M (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	21 (City)	13 (City)
Riders per capita	44	31
Sustainable transportation mode share (transit, walking, cycling)	Carpool 6.7% Transit 3.7% Taxicab <.1% Bike/Motorcycle 0.3% Walks only 1.5%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	100% of light and heavy rail, 0.2% of bus	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	12.2% in 2000 (Demographia.com)	5.76%
Parking spaces per 1000 jobs in CBD	157	767.4

Brief description of the transportation system

The Greater Cleveland Regional Transit Authority (GCRTA) is the public transit agency for Cuyahoga County, serving a 458 square mile area. GCRTA is a multimodal agency, operating fixed-route bus (90 routes), demand-responsive ADA paratransit, heavy rail (Red Line – 19 miles), and light rail modes (Blue and Green Lines – 18 miles). A BRT line (Silver Line) is currently being constructed and is scheduled to start service in 2008. It will operate from the downtown to the near eastside universities and health centers.

GCRTA operates a radial/crosstown network of fixed-route services. In recent years, the agency has developed a network of regional bus park-and-ride lots, as well as a network of suburban transit centers. GCRTA operates a fleet of 60 heavy rail cars, 48 LRV's, and 659 motorbuses for fixed-route service (2005 NTD reports).

In downtown Cleveland, the major GCRTA transit facility is the Tower City Center rail station. Buses rely on on-street stops near Tower City to facilitate bus-rail transfers.

The Metropolitan Planning Organization, NOACA, administers the carpool program (RideShare) for Cuyahoga County and assists in organizing vanpools (the vans are owned by VPSI, Inc.)

Similarities/Dissimilarities with San Diego

- Strong downtown sports venues (Baseball park, football stadium, and arena used for basketball, ice hockey, and concerts/events.) The baseball park and arena can be accessed from the Tower City Center rail station through a tunnel controlled by GCRTA. The football stadium is adjacent to the West 3rd St light rail station.
- Downtown Convention Center and Playhouse Square Theatre District also provide comparable entertainment precincts.
- Outside of downtown Cleveland, there are large office parks located in Independence (Rockside/I-77), in Beachwood (Chagrin/I-271) and in Pepper Pike (Cedar/I-271) that have drained employment from downtown.
- Buses rely on street layovers in downtown.
- Much lower population than City of San Diego, but higher population density.
- Higher ridership per capita and smaller service area.
- Although the city is increasing the number of downtown residential units (in Warehouse District, in the Flats, near Gateway), downtown Cleveland is still primarily a weekday work destination, with a number of corporate headquarters located there. It is also much less an entertainment destination compared with San Diego.
- With the closing of the downtown Dillard's department store, there are no major downtown Cleveland department stores. The largest concentration of downtown retail is in the Tower City Center complex. Major suburban shopping malls/plazas are Great Northern Mall, South Park Mall, Beachwood Place, and The Promenade.
- Cleveland's Lakefront development has been concentrated in the North Coast Harbor area, site of the Rock and Roll Hall of Fame Museum and the Great Lakes Science Center. The lakefront, constructed on fill, is separated from downtown by both SR 2 Shoreway and NS railroad tracks. Improving lakefront access remains an issue, this area not being as easy to access from its downtown compared to San Diego's waterfront.
- Severe winter weather conditions.
- Much lower parking supply in downtown.
- Much higher proportion of region's jobs in downtown.

Cleveland Downtown Transit Map



Brief Case Study: Denver, USA



Criteria	Denver	San Diego
Robust Regional Transit (Rail)	Existing and planned LRT; planned Commuter Rail	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	16 th Street Mall	
CBD Transit Hub(s)	Ends of Mall	Santa Fe Depot
Peripheral Hub with Forced Transfer	Yes (certain lines)	
Strong Downtown Business	Yes	Yes
Strong Downtown Residential		Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Some	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	2.4M (MSA) 0.56 M (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	14.3 (City)	13 (City)
Riders per capita	151	31
Sustainable transportation mode share (transit, walking, cycling)	Carpool 9.8% Transit 4.4% Taxicab .01% Bi/Motorcycle 0.8% Walks only 1.9%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	3.2% (2006)	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	12.2% in 2000 (Demographia.com)	5.76%
Parking spaces per 1000 jobs in CBD	396	767.4

Brief description of the transportation system

The Regional Transit District (RTD) provides mass transportation for the City and County of Denver, City and County of Broomfield, the Counties of Boulder and Jefferson, the western portions of Adams and Arapahoe Counties, the northeast part of Douglas County, and small portions of Weld County annexed by Longmont and Erie.

RTD serves a population of approximately 2.6 million people over a 2,329 square mile area, with a variety of transit services including light rail service (6 routes – 34.8 miles), fixed-route bus (166 total local, express, and regional, limited and skyRide routes), community dial-a-ride service, and ADA paratransit service. RTD has a fleet of 1,056 buses of which 851 are used in peak service. RTD also has a fleet of 84 LRV's and 313 cutaway buses used for ADA paratransit and community dial-a-ride service. RTD is currently planning for additional light rail and commuter rail lines.

In downtown Denver, 16th St. between Wynkoop and Broadway is a mile-long pedestrian mall served by a free special Mall Shuttle bus service operated by RTD and subsidized by the Downtown Business Improvement District. The Mall Shuttle runs frequently (every 2-4 minutes) during the business day, and carries 55,000 daily riders. There are bus terminals located both at Union Station and the Civic Center ends of the Mall, which are the staging areas for RTD express, regional and limited bus services. The 16th Street Mall also intersects the downtown light rail distribution loop—there are light rail stations at both 16th/Stout and 16th/California. In addition the 16th Street Stations, the light rail system also has downtown stations near the Convention Center/Performing Arts Center, 18th St., and 20th St.

There is a 6.6 mile bus and carpool HOV reversible lane on the I-25 Highway leading north from Denver. Concerning alternative transportation options for travelling in downtown Denver, the Downtown Denver Partnership appears to be very proactive about promoting the use of transit, vanpools, bicycles, and walking. There are a number of streets in downtown with bicycle lanes (see link below), as well as a bicycle path along the Platte River. The City's Bicycle Plan (which has won awards) and related maps can be found at link listed below. There are plans to add pedestrian friendly features to 18th Street as it develops (see link to article below).

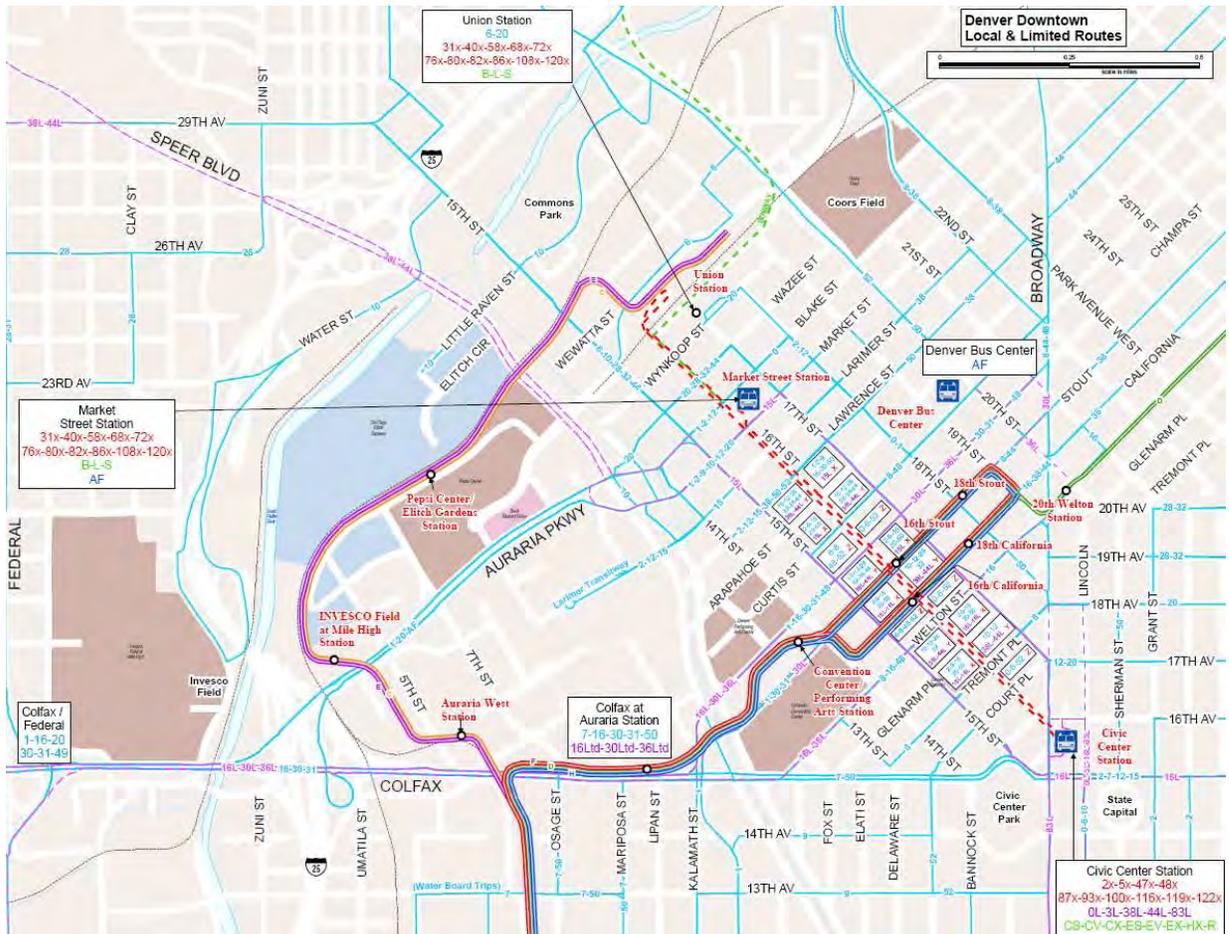
Concerning vanpools, Denver Regional Council of Governments (DRCOG), administers the regional vanpool (VanGo) and carpool programs. According to carsharing.net, there is not currently a carsharing program in Denver. There is a pedicab operator, Mile High Pedicabs, a subsidiary of Main St. Pedicabs, which does provide on-demand transportation in downtown Denver in addition to tours.

Finally, there is a heritage trolley line which operates on the west side of the Platte River from late April through Halloween. This line serves REI, Denver Aquarium, Children's Museum, and Ivesco Field at Mile High. Shuttle service is operated for Broncos home games.

Similarities/Dissimilarities with San Diego

- Growing Western U.S. City
- Presence of downtown sports and arts venues
- Modern light rail system
- Successful downtown transit mall with dedicated service
- Telecommunications and technology businesses important part of regional economy
- Comparable regional population and population density
- Large service area
- Inland city – no waterfront development
- Severe winter weather
- Higher proportion of employment downtown
- Lower amount of parking downtown
- Much higher riders per capita
- Much lower downtown population (less focus on downtown residential)

Denver Downtown Transit Map



Brief Case Study: Toronto, Canada



Criteria	Toronto	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	-	
CBD Transit Hub(s)	-	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Some	Some
Population	5.5M (Metro area) 4.7M (Urban area) 2.5M (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	7.8 (Metro area) 27.2 (Urban area) 39.7 (City)	13 (City)
Riders per capita	174 (TTC only)	31
Sustainable transportation mode share (transit, walking, cycling)	20.9%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	?	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	13%	5.76%
Parking spaces per 1000 jobs in CBD	239	767.4

Brief description of the transportation system

The Toronto Transit Commission (TTC) is the third largest public transit system in North America after the New York City Transit Authority, and Mexico City Metro. The TTC provides public transit within the City of Toronto, covering 1,200 km (754 miles) of routes and heavily used by people who live in or near the city. The backbone of its public transport network is the **subway system**, running along principal streets and connecting Toronto's outlying areas with its downtown core. Each line also connects to a secondary feeder near one of its outer ends: the Sheppard subway line in the north and the Scarborough RT in the east making it the most extensive rapid transit system in Canada. The TTC also operates an extensive **network of buses** (150 bus routes, many of them forming a grid along main streets, connecting to one or more subway or RT stations). A more distinctive feature of the TTC is the streetcar system, one of the few remaining in North America with a substantial amount of in-street operation. Most of the 11 streetcar routes are concentrated in the downtown core, and all connect to the subway.

A single flat fare is good for any trip within the city regardless of distance or transfers required with the exception of contracted routes that travel outside of the city and downtown express routes.

In addition, the Government of Ontario operates an extensive inter-regional **rail and bus transit system** called GO Transit connecting the city to the rest of the Greater Toronto Area. With thirty-eight trains, and seven train lines, GO Transit run 179 trips, and carry over 160,000 passengers in the Greater Toronto Area every day. An additional 288 GO buses feed the main rail lines.

There are a number of freeways that serve Toronto and the Greater Toronto Area. In particular, Highway 401 bisects the city from west to east, bypassing the downtown core. It is one of the busiest highways in the world.

Toronto has a major program in place to dramatically expand the **cycling network** through on-road separate bike lanes, with the goal of having any cyclist in the city proper within a five minute ride of a designated bike route. The network includes a planned 500km of on-street bike lanes, and another 250km of off-road paved trails. To date, only a tiny portion of the network has been built. Gaining approval to put in the on-street bike lanes has proven to be a serious problem, and less than 90 km of the planned 500km have been set up so far. The small coverage also reduces the overall usefulness of the network, as many of the lanes do not connect with each other.

Nevertheless, Toronto has an extensive bicycle culture, and most areas of the city are reasonably bicycle-friendly. The municipal government encourages bicycle use through its Toronto Bike Plan. Community groups sponsor activities such as a Bikeshare program. Some TTC buses have bicycle racks attached to their fronts. Bicycles are allowed on the subway outside of the morning and evening rush hours.

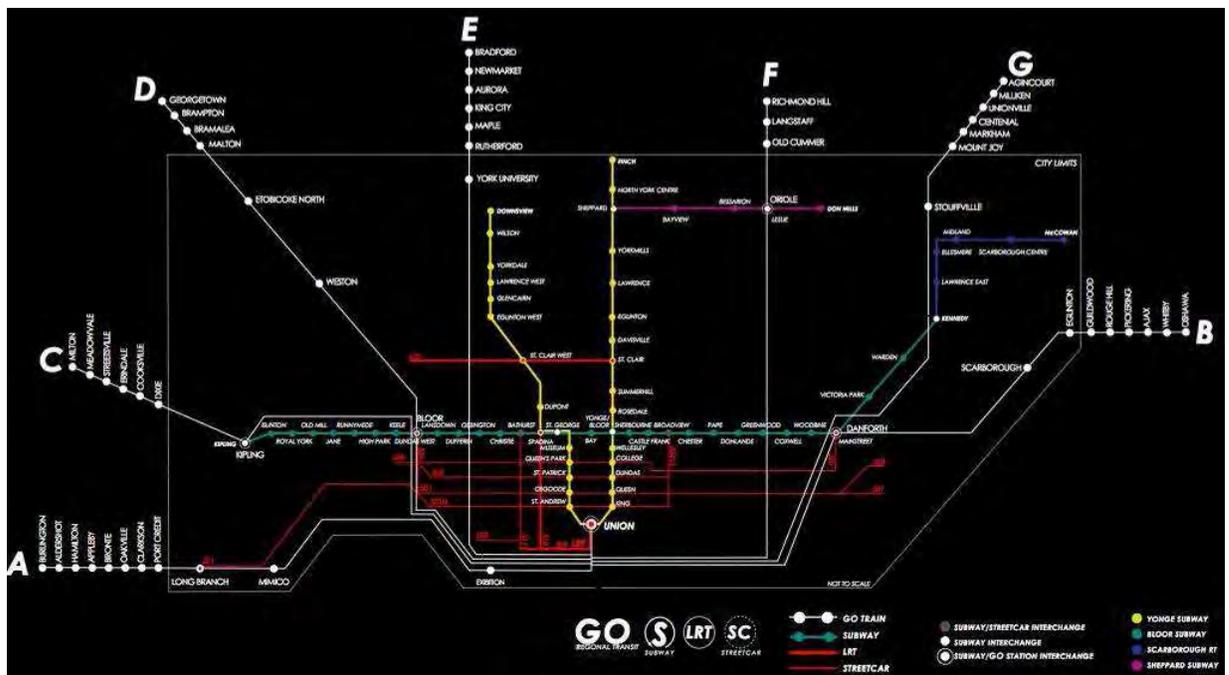
Similarities/Dissimilarities with San Diego

- Well developed transit network, regional scale significantly larger

Toronto CBD Transit Map



Toronto Transit Map



Brief Case Study: Ottawa, Canada



Criteria	Ottawa	San Diego
Robust Regional Transit (Rail)	-	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	-	
CBD Transit Hub(s)	-	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	-	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	1.3M (Metro area) 875,000 (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	31.5 (City)	13 (City)
Riders per capita	118 (OC Transpo)	31
Sustainable transportation mode share (transit, walking, cycling)	27.4%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	5.7%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	20.11%	5.76%
Parking spaces per 1000 jobs in CBD	347.55	767.4

Brief description of the transportation system

The capital city of Canada is served by a network of freeways, the main one being provincial Highway 417, Ottawa-Carleton Regional Road 174 (Formerly Provincial Highway 17), and the Highway 416, connecting Ottawa to the rest of the 400-Series Highway network in Ontario. The city also has a freeway connection to Autoroute 5, in Gatineau.

Ottawa's main mass transit service is OC Transpo (provided by the City of Ottawa). The Ottawa rapid transit system includes the **Transitway** (a network of mostly grade-separated, extremely high-frequency, reserved bus rapid transit lanes with full stations instead of stops) and a **light rail system** called the O-Train. A new light rail system, including a tunnel under the downtown core, is being considered for connecting the north-south and the east-west sections of the city.

Both OC Transpo and the Quebec-based Société de transport de l'Outaouais (STO) operate **bus services** between Ottawa and Gatineau. A transfer or bus pass of one is accepted on the other without having to pay a top-up fare on regular routes.

OC Transpo has approximately 250 bus routes that are grouped under four categories:

- Regular routes generally operate 7 days/week from about 6:00a.m.-midnight Monday-Saturday, and from about 7:00a.m.-11:00p.m. on Sundays & most holidays. The cash fare on regular routes is \$3.00.
- Peak routes generally operate 5 days/week from 6:00a.m.-9:00a.m., and from about 3:00p.m.-6:00p.m. The cash fare on peak routes is \$3.00.
- Express routes generally operate 5 days/week from 6:00a.m.-9:00a.m., and from about 3:00p.m.-6:00p.m. All green routes travel towards downtown in the morning, and away from downtown in the afternoon. Most green routes travel to suburban areas, however, some of them also travel to rural areas. The cash fare on the express routes is \$4.00 for routes that travel to suburban areas, and \$5.00 for routes that travel to rural areas.
- Early morning routes generally operate 5 days/week from about 4:00a.m.-6:00a.m. in one direction only. The cash fare on these routes is \$3.00.

Because most streets either have wide curb lanes or bicycle lanes, together with an extensive off-road network, cycling is a popular mode of transportation in the region through most of the year.

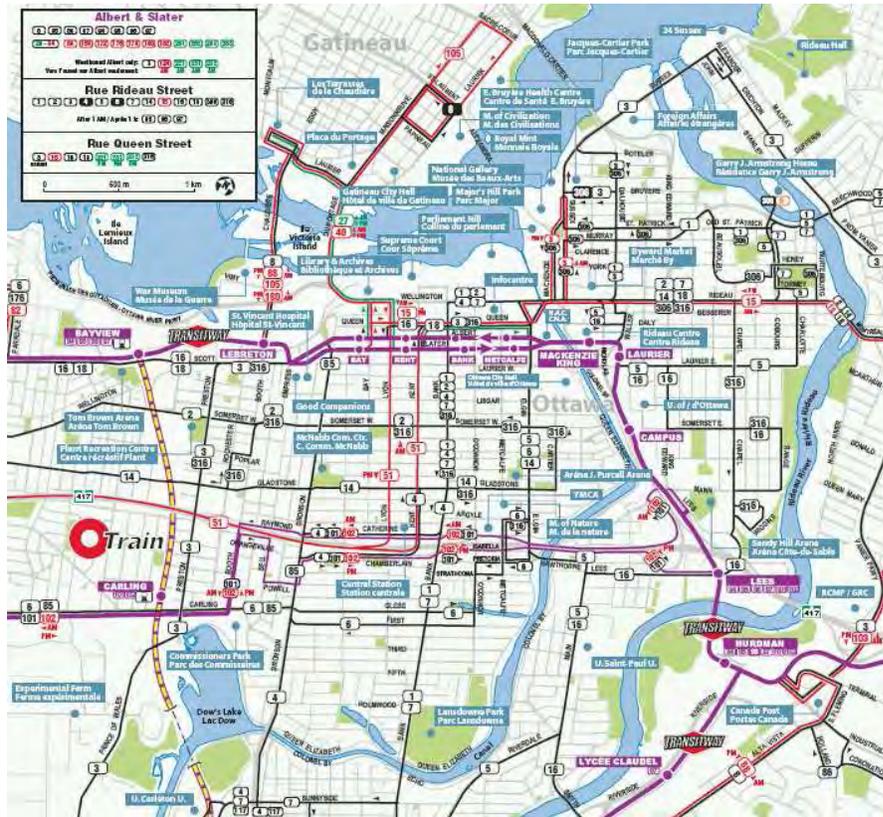
For a number of years, OC Transpo has carried bicycle racks on some routes as a part of the "Rack&Roll" campaign. These racks carry up to two bicycles at the front of the bus, and fold up against the bus when not in use. Although it started only on three routes, this service has been expanded to include 13 other routes, all articulated (long) buses and several new Invero low-floor buses.

In the past, this service won an award for being the best in North America. Although Ottawa's population has increased by 25% (from 678,000 to 850,000) in the last decade, service levels have increased 6% from 1996 to 2006 (50 million km to 53.2 million km per year), and ridership has gone up 12% from 80 million riders a year to 89.6 million.

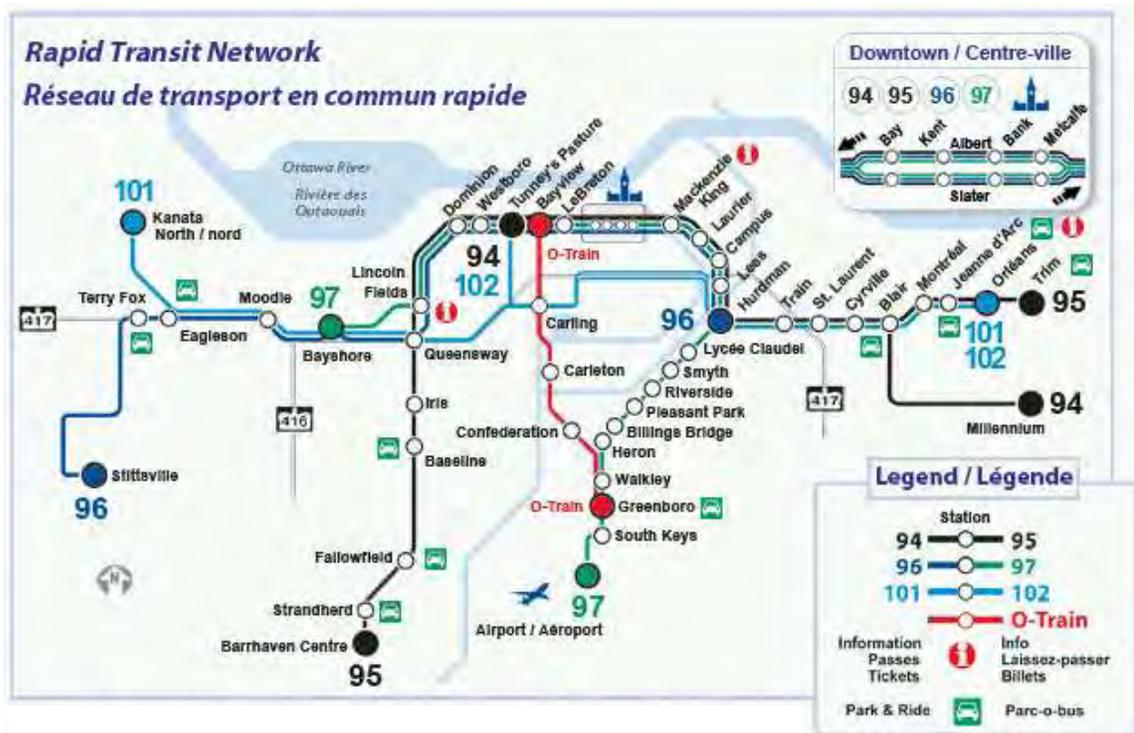
Similarities/Dissimilarities with San Diego

- Ottawa has a high ridership level although the transit network is only over-ground and the proportion of the network on exclusive right-of-way is limited.
- Smaller city, with little congestion when compared to San Diego.
- High proportion of jobs in the CBD and high concentration of government (e.g. national government) jobs.
- Downtown has remained a relatively successful area and has not seen the level of renewal experienced elsewhere.

Ottawa CBD Transit Map



Ottawa Transitway Map



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Brief Case Study: Munich, Germany



Criteria	Munich	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	-	-
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	Yes	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	-	Yes
Downtown Arts	Yes (Historical centre)	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	6M (Metro area) 2.6M (Urban area) 1.3M (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	43.2 (City)	13 (City)
Riders per capita	347	31
Sustainable transportation mode share (transit, walking, cycling)	59.6%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	26%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	36.29%	5.76%
Parking spaces per 1000 jobs in CBD	270.68	767.4

Brief description of the transportation system

The Munich region has a high percentage of highly paid jobs and one of the lowest unemployment rates in Germany. Munich is also listed as one of the most densely built-up urban areas in Germany.

There is a continuing strong demand for new houses but land available for development is scarce. Densification of the city has been favored by the planners to contain urban sprawl and a strategy called 'Compact - Urban - Green' was adopted. However, due to the lack of natural physical boundaries, urban growth was in the past largely unrestricted.

The neighborhoods around the inner and the middle ring roads are today the less desirable places to live because of heavy traffic. Today the function of these roads is an issue of great political debate. In 1996, the green stakeholder groups lost a public poll to reduce the capacity of key streets. Instead it was decided to put these streets underground and keep the capacity.

For its population, Munich has one of the most comprehensive transportation systems in the world, incorporating:

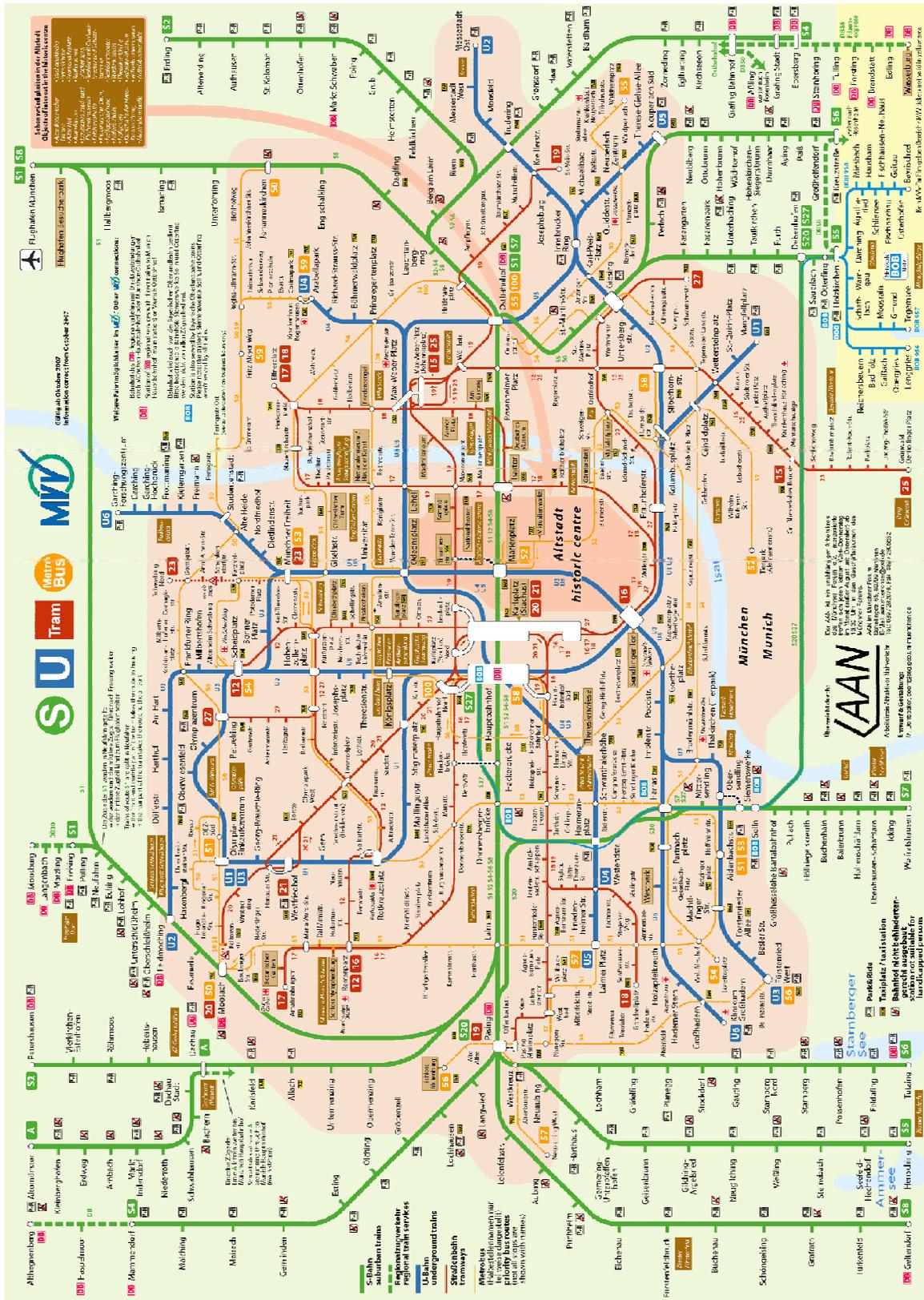
- The Munich U-Bahn system is an electric railway public transportation network (a metro or **subway system**) - 100.8km (62.6mi) – 98 stations - daily ridership of 904,100 (2006). The network is integrated in the Munich Transport and Tariff Association (Münchner Verkehrs- und Tarifverbund, MVV) and interconnected with the S-Bahn system.
- The Munich S-Bahn network (**suburban trains**) is integrated in the Munich Transport and Tariff Association (Münchner Verkehrs- und Tarifverbund, MVV). Together with the U-Bahn, it is the backbone of Munich's public transport system. The system was created by connecting the suburban rail services from the west of the city with those to the east, by means of a tunnel section from the Hauptbahnhof (Main train station) in the west to Ostbahnhof (East train station) in the east (the so-called "core" route) - 442 km (275 mi) – 147 stations – daily ridership of 750,000.
- **Trams** – 89 million passengers per year, 71km,
- **Buses** - 165 million passengers per year, 452km,
- Regional, National and international rail

The main train station is the Munich Hauptbahnhof (Central Station), in the city centre, and there are two smaller main line stations at Pasing (Pasing Station), in the west of the city, and Munich Ostbahnhof (East Station) in the east. All three are connected to the public transport system and serve as transportation hubs.

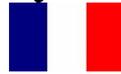
Similarities/Dissimilarities with San Diego

- Munich has an impressive integrated transport system and is a people orientated city centre.
- The context is significantly different: Munich is very dense, with a high proportion of jobs in the CBD. It is an extremely wealthy city with a strong history of investment in all modes of transportation and as a result has an exceptionally well-developed and integrated network.

Munich Transit Map



Brief Case Study: Nantes, France



Criteria	Nantes	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	-	-
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	-	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	-	Some
Population	0.8M (Metro area) 0.5M (Urban area) 280,600 (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	3.5 (Metro area) 11.4 (Urban area) 43 (City)	13 (City)
Riders per capita	176	31
Sustainable transportation mode share (transit, walking, cycling)	41.6%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	22.7%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	12.47%	5.76%
Parking spaces per 1000 jobs in CBD	555.3	767.4

Brief description of the transportation system

Nantes boasts a big port, with harbour activities concentrated in the area west of the city, to accommodate deep ocean-going vessels. The old docklands in the city centre are redeveloped to office and residential areas. Nantes has a big university. For the average tourist, the inner city offers attractive tree-lined avenues and romantic alleys. In a wide circle around the inner city lies a swathe of 20th century suburbs.

The omnibus, the first organized public transit system within a city, appears to have originated in Nantes in 1826. The Tramway de Nantes began operation in 1879, but would closed in 1958.

It is only 20 years ago that Nantes decided to launch a counter-offensive to established transportation policies. Car traffic was seen to have taken possession of the entire city with proposed plans to replace the quays along the Erdre River with a six-lane urban express motorway. This caused an outcry. The citizens demanded more public transportation instead. The leaders reacted with a plan to promote bus transportation. This was rejected instead and extensive tramway network was developed.

After the 1973 oil crisis, local governments were encouraged to build tramways, with a state subsidy of 50%. Nantes was the first city to embrace the idea, only a few years after it had closed all its tram lines. The tramway was built and opened in 1985. Nantes now has the largest tramway network in France.

The growth of the tramway system has been accompanied by a gradual reduction of the role for the 45 TAN-operated city bus routes (with 109 articulated and 174 standard buses). Buses have become feeder lines for the tramway system. At many points along the three tram lines there are convenient interchange stations between buses and trams. Several glass-roofed tram stations, such as Mendes France and François Mitterand, have buses sharing reserved lanes with the trams.

In 2007, Nantes opened a new Bus Rapid Transit link to the downtown. An LRT had originally been proposed but a new funding environment and cost constraints lead to consideration of other options. The BRT provides a very high quality service to the downtown corridor, uses a high tram-like level of design. A major 4-lane arterial road into the downtown was converted to a 2-lane busway with 2 traffic calmed adjacent lanes.

Transport de l'agglomération nantaise (TAN) now operates:

- 3 tramway lines, running every 4 or 5 minutes during peak periods and counting 72 stops;
- 1 busway line,
- hundreds of bus routes,
- 2 navibus lines, and
- 4 suburban train lines

At nine different points throughout Nantes, there are 'parking-relais' (park-and-ride facilities). Reduced fares for tram tickets are offered to car drivers who use the park and ride facilities.

The city also shows good results regarding its actions to improve cycling and walking. The PDU (equivalent to the TMP) presents specific and ambitious objectives, including 25% walking mode share and 5% cycling mode share.

At the European scale, little cities have managed to reduce traffic. In France, Nantes has managed to reduce auto mode share thanks to 10 years of strong political will. Thus, between 1991 and 1996, auto mode share in Nantes has dropped from 59.4 % to 57.4 %.

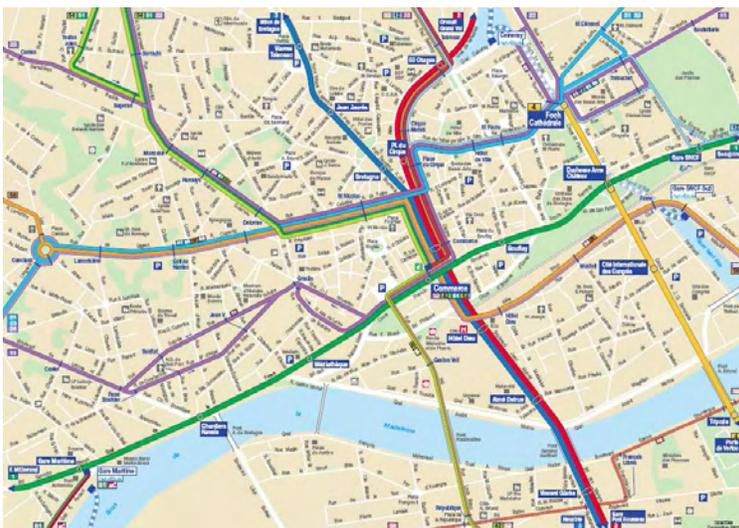
Similarities/Dissimilarities with San Diego

Major investments in transit have shown positive results: within 10 years, the tram lines in Nantes supported an increase of 20% in the number of clients of city-centre shops. The share of shoppers who travel to the city centre by public transport rose from 30 to 50%. Scale of investment and support for transit may not be comparable to San Diego.

Nantes Transit Map



Nantes Transit Map CBD



Brief Case Study: Brussels, Belgium



Criteria	Brussels	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	-	
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	?	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	1.97M (Metro area) 1M (Region)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	63.2 (Region)	13 (City)
Riders per capita	175	31
Sustainable transportation mode share (transit, walking, cycling)	56.1%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)		100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	26.68%	5.76%
Parking spaces per 1000 jobs in CBD	274.7	767.4

Brief description of the transportation system

Brussels, the capital of Belgium, is also one of the official capitals of the European Union with most institutions having their headquarters here.

The Brussels **Metro** (114.5 million trips in 2005) is operated by STIB/MIVB (Société des Transports Intercommunaux de Bruxelles) also responsible for a **tram network** (68.8 million trips in 2005) 133km long (12km of which are in tunnels). A comprehensive **bus network** (71.5 million trips in 2005) also covers the city. An interticketing system means that a STIB/MIVB ticket holder can use the train or long-distance buses inside the city.

The Brussels Métro started as a tramway with important sections of underground tunnels used by various tram routes. Today 3 lines are operated as full metro lines whereas 2 other lines, the north-south city tunnel and the outer ring tunnel in the east, are still used by trams with low station platforms. In total, the underground network is about 50km and has 68 underground stations.

The **commuter services** operated by De Lijn, TEC and SNCB/NMBS will in the next few years be augmented by a metropolitan RER rail network around Brussels.

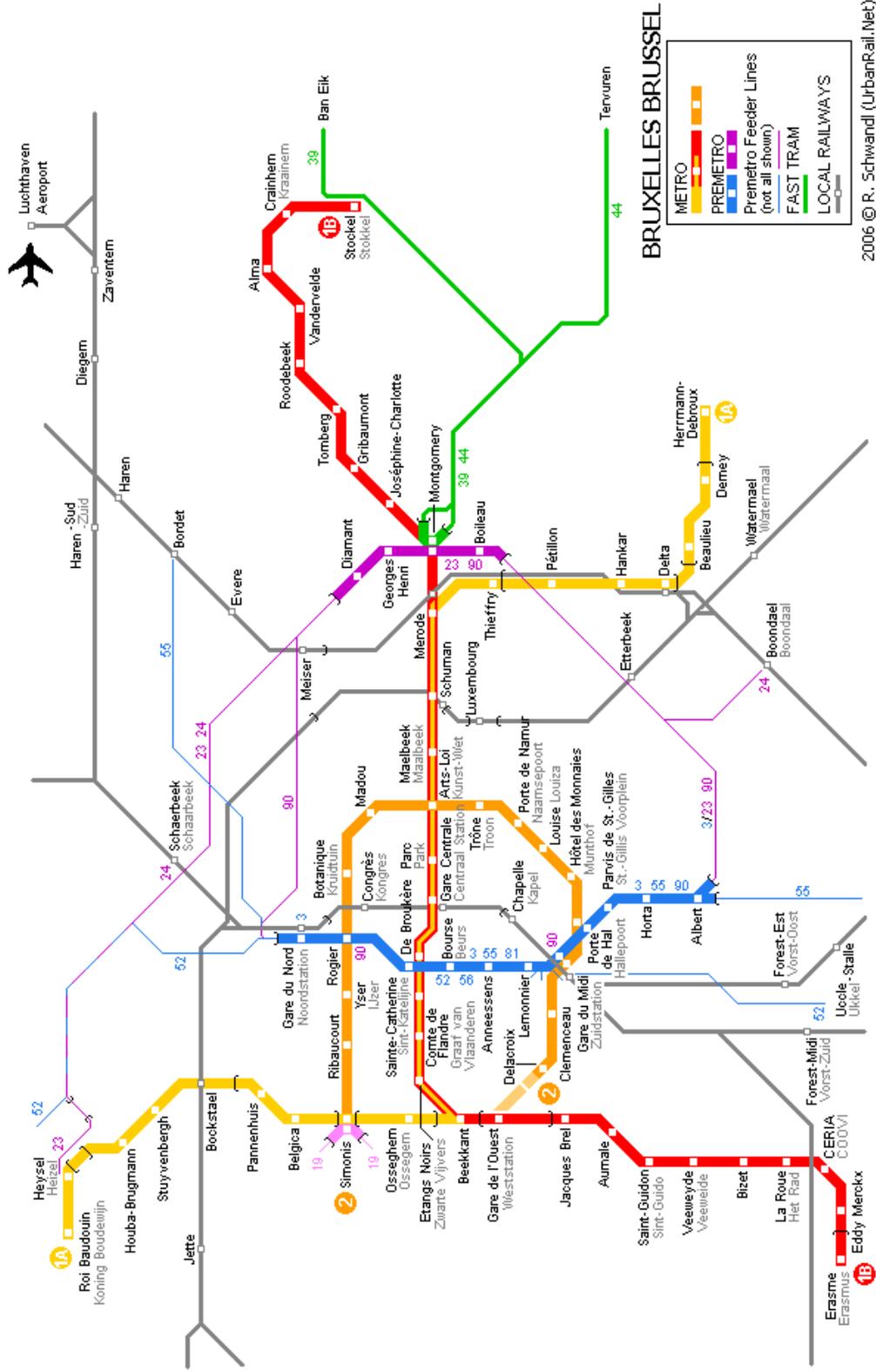
Since 2003 Brussels has had a **car-sharing service** operated by the Bremen company Cambio in partnership with STIB/MIVB and local ridesharing company taxi stop. In 2006 **shared bicycles**, called "Cyclocity" system, were also introduced (250 public bicycles in located 23 stations).

As one expects of a capital city, Brussels is the hub of a fan of old national roads, the principal ones being clockwise the N1, N2, N3, N4, N5, N6, N8 and N9. As for motorways, the town is skirted by the European route E19 (N-S) and the E40 (E-W), while the E411 leads away to the SE. Brussels has an orbital motorway, numbered R0 (R-zero) and commonly referred to as the "ring". The city centre, sometimes known as "the pentagon", is surrounded by the "small ring", a sequence of boulevards. These were built upon the site of the second set of city walls following their demolition. Metro line 2 runs under much of these.

Similarities/Dissimilarities with San Diego

- Brussels is a car orientated city (workplace car allowances are common) and yet has a good PT/land use integration.
- Although the city has a population size similar to San Diego, the land-use is very different: very high population density; and concentration of jobs in the CBD; and a high level of government office presence.
- The city also benefits from an impressive underground network (50km) that is not in context for San Diego.
- Trips distances tend to be very short with 65% of all journeys being less than 3 km long.

Brussels Transit Map



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Brief Case Study: Rome, Italy



Criteria	Rome	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Yes	-
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes (19.6%)	Yes
Strong Bicycle Orientation	(rental bike program starting 2008)	Some
Population	5.5M (Metro area) 4M (Urban area) 2.7M (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	7.5 (Urban area) 21.1 (City)	13 (City)
Riders per capita	229.95	31
Sustainable transportation mode share (transit, walking, cycling)	43.2%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	?	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	19.61%	5.76%
Parking spaces per 1000 jobs in CBD	344.5	767.4

Brief description of the transportation system

Rome is the capital city of Italy, as well as the country's largest and most populous commune, with more than 2.7 million residents. The metropolitan area has a population of about 4 million.

Chronic congestion caused by cars during the 1970s and 1980s led to the banning of unauthorized traffic from the central part of city during workdays from 6 a.m. to 6 pm. This area is officially called (Italian) Zona a Traffico Limitato (ZTL). Heavy traffic due to night-life crowds during weekends led in recent years to the creation of other ZTLs in the Trastevere and S. Lorenzo districts during the night, and to experimentation with a new night ZTL also in the city center (plans to create a night ZTL in the Testaccio district as well are underway). In recent years, parking spaces along the streets in wide areas of the city have been converted to pay parking, as new underground parking spread throughout the city. In spite of all these measures, Rome's traffic remains an unsolved problem.

A 2-line **subway system** operates in Rome, called the "Metropolitana" or Rome Metro. The underground network is generally reliable (although it may become very congested at peak times and during events, especially the A line) as it is relatively short. As of 2005, its total length is 38 km. The two existing lines, A & B, only intersect at Roma Termini station. A new branch of the B line (B1) is under construction with an estimated cost of 482.900.000 Euro. It is scheduled to open in 2010. B1 will connect to line B at Piazza Bologna and will have 4 stations over a distance of 3.9 km. A third line, line C, is under construction with an estimated cost of 3.000.000.000 Euro and will have 30 stations over a distance of 25.5 km. It will partly replace the existing tram line, Termini-Pantano. The first section will open in 2011 and the final sections in 2015. A fourth line, line D, is under development. It will have 22 stations over a distance of 20 km. The first section will open in 2015 and the final sections before 2035.

The Rome Metro is part of an extensive transport network made of a **tramway network, suburban and urban lines** in and around the city of Rome, plus an "express line" to Fiumicino Airport. Whereas most FS-Regionale lines (Regional State Railways) do provide mostly a suburban service with more than 20 stations scattered throughout the city, the Roma-Lido (starting at Ostiense station), the Roma-Pantano (starting nearby Termini) and the Roma-Nord (starting at Flaminio station) lines offer a metro-like service. There is also an overground rail system with seven lines which link the hinterland of the Roman Area. One of this leads to the second Airport of the city, Ciampino. Rome also has a comprehensive **bus and light rail system**.

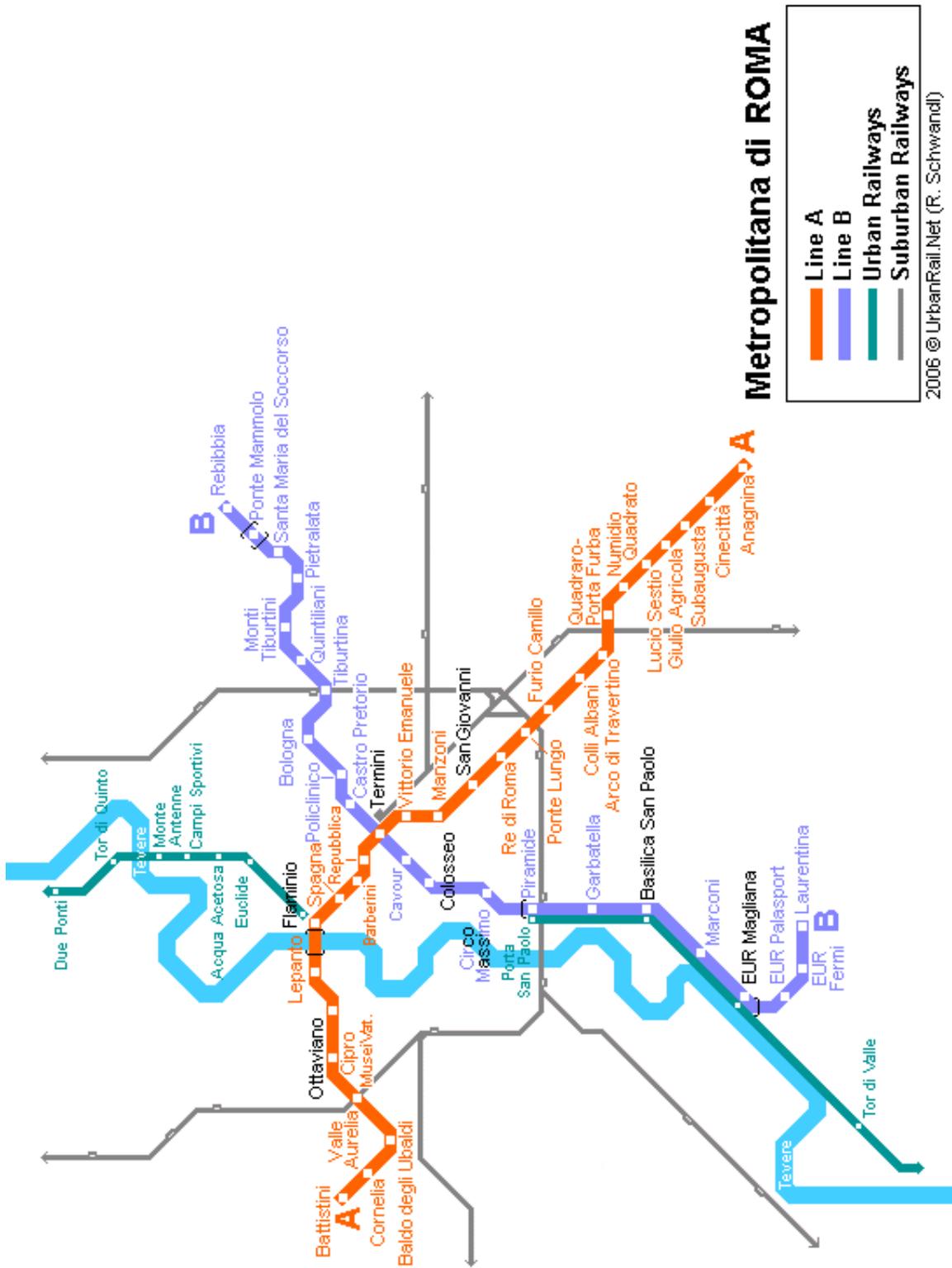
The Metrebus integrated fare system allows holders of tickets and integrated passes to travel on all companies vehicles, within the validity time of the ticket purchased.

Rome has also decided to test **public bike rental services**. The initial plans are a modest deployment of 250 bicycles in 22 stations, which will be placed in Rome's historical center, starting January 2008. Should this pilot program work, Rome's City Hall will deploy more than 20,000 vehicles around the entire city.

Similarities/Dissimilarities with San Diego

- Rome has a strong car culture, yet it has a good PT system and is trialing road pricing.
- Scale and context significantly different. High proportion of jobs and residential in the CBD.

Rome Transit Map

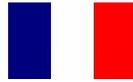


Appendix A2 – Detailed Case Studies

The detailed case studies that were undertaken for the four cities are included in the following pages. The cities selected for closer examination are listed below:

- Bordeaux, France
- Brisbane, Australia
- Portland, USA
- Vancouver, Canada

Detailed Case Study 1: Bordeaux, France



Criteria	Bordeaux	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	-	Yes
Special CBD Transit Circulation	Yes (electric shuttle)	-
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	Yes	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues		Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	1,2M (Metro area) 230,600 (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	3.1 (Metro area) 46.7 (City)	13 (City)
Riders per capita	104	31
Sustainable transportation mode share (transit, walking, cycling)	35%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	4%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	n/a	5.76%
Parking spaces per 1000 jobs in CBD	n/a	767.4
Climate	43°F (January) 69°F (July)	57°F (January) 72°F (July)

Summary of achievements, measures and policies

- Significant transit improvement through tram lines
- Innovative light rail ground level power supply system (useful in an environmentally sensitive locations and places with laws forbidding overhead pick-up wires)
- Integrated bus pass system
- Park-and-ride at strategic locations
- Significant cycling and pedestrian network extensions
- Seamless bicycle rental systems
- A maximum of 50% of public space is dedicated to cars in all new roadway construction/renovation
- Improved walk-ability and connectivity through streetscaping and green spaces
- A car-sharing web-site managed by the CUB (Urban Community of Bordeaux)
- Car-free zones
- Program a "Day Without Cars" complemented with cultural and sports activities for pedestrians, cyclists and rollerbladers.
- Centralized traffic management system "Gertrude" and traffic information service "Info Traffic"
- Commuter choice programs

Brief description of the transportation system

Bordeaux is an important road and motorway junction. The city is connected to Paris by the A10 motorway, with Lyon by the A89, with Toulouse by the A62, and with Spain by the A63. There is a 45 km ring road called the "Rocade" which is often very busy. Development of a new ring road is being discussed. The approaches to the historical inner area have become very difficult for all vehicles due traffic congestion.

Bordeaux has an important public transportation system called TBC, run by Connex group.

The network is composed of:

- **3 tram lines** (A, B and C) put into service in December 2003, connecting Bordeaux with the suburban areas. The tramway network is 27 miles in length and is used by up to 180,000 daily (end 2006). A high quality of infrastructure and urban design was fundamental to creating a attractive travel option, however this did add significant cost and increased the complexity of construction and related system performance impacts. At the same time that the tram was being built, many downtown streets and squares along the tramway lines became pedestrian areas, with limited access by cars. Total budget: 1,183 billion euros. At the end of 2006, tram lines were carrying 55% of all riders.
- **95 bus routes** (from 1 to 96) and **12 night bus routes** (from S1 to S12), all connected to the tramway network, serviced by 541 buses including 143 powered with natural gas.
- **15 park-and-ride** lots, providing 5000 parking spaces
- **An electric bus shuttle** (6 vehicles) to service the small streets of the inner area. The shuttle has no fixed stops and stops whenever requested.
- **A boat shuttle** on the Garonne river

There have been several plans for a subway network, however these have been shelved due to geological challenges and financial constraints.

Achievements, measures and policies

The Bordeaux transit network was nominated for the award of best transit network of France in December 2006 due to its excellent ridership levels on the tram lines and investments for future developments of the tram network. In the past 5 years, the CUB has also seen an increase in park-and-ride use and has developed infrastructure for sustainable modes.

Transit

In 3 years, Bordeaux completed a transit revolution, changing the car-dominated nature of the city center, by building 3 tram lines with total length of 27 miles and with 88 stations. Sustainable transportation mode share is expected to increase to 17% city-wide by 2010 (37% for the city centre), compared to 9% in 1998. The investments have supported housing revitalization, walk-ability and business activity in the downtown. The average time gain on every transit trip with the tram network was estimated to be 8min. This significant improvement was accompanied by an urban revitalization of an unequalled magnitude in France, transforming a much neglected downtown area.



The tram network operates at an average speed of 21km/h system-wide and is within a 500m walking distance of:

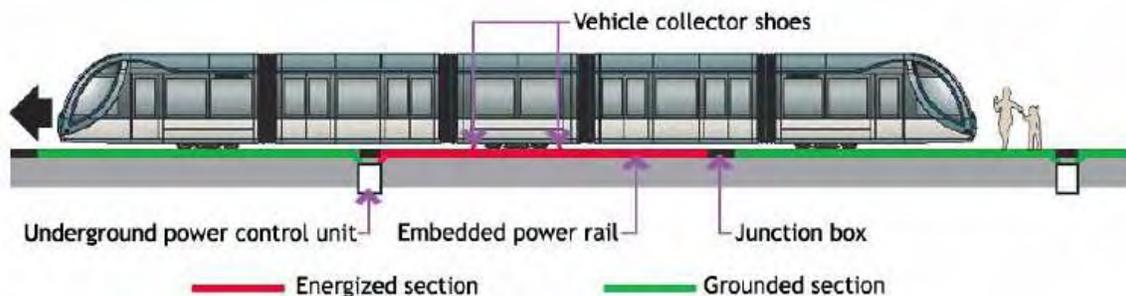
- 37 % of the population of the metropolitan area
- 65 % of schools and universities
- 54 % of hospitals and clinics
- 50 % of work places.

A smartcard technology has been implemented for ticketing in the city. It integrates rail season-ticket passes (SNCF), Bordeaux’s bus and tram network, as well as Trans-Gironde private bus company. Both weekly and monthly passes are available, and provide free access to park-and-rides. Regular tickets (tickarte) allow an hour ride on Bordeaux’s bus and tram network.

The impact of the tram on the urban environment has been positive due to the innovative use of technology in the form of a round level power supply system that eliminates the need for overhead wires.

Tram facts:

- 70 low-floor trams (52 Citadis-402, 44m long, capacity of 300 – 18 Citadis-302, 33m long, capacity of 200). Technically, all trams can be used on all routes.
- Double-track standard gauge, 750 V dc, segregated over its full length, with tram lanes or green manicured lawns. No other vehicles, including buses or taxis, are allowed on the tram lanes.
- Automatic priority at traffic signals at all road crossings.
- 4-5min headway service during rush hours and 8min at other times.
- Minimum curve radius in the city centre of 18m and flange greasers used to reduce noise levels (max. 74dB).
- Tram lines do not overlap.
- 6.5 miles without overhead wires (for aesthetic or safety reasons), equipped with third-rail for power supply (called APS, ground-level current collection).
- Should the ground level power supply system fail, each vehicle has batteries on the roof to permit about a half mile operation at low speed, called MITRAC ENERGY SAVER. It may also be useful in an environmentally sensitive location.



Non-motorized modes

The city is making significant enhancements to improve conditions for pedestrians and cyclists. Car-free zones have been created in the main plazas, along major streets and in the historical inner area.

Bordeaux has managed to improve the walk-ability of the city through major streetscaping projects (trees along roadways, larger sidewalks, lighting plan, quality street furniture) to supplement the tram lines construction. The city also improved pedestrian connectivity through different actions such as the rehabilitation of Labarde dump, transformation of the Bourgaillh dump into a leisure eco-park, the creation of the Jalles Park along eight northern communities of the CUB and the rehabilitation of connecting pathways along the river through the “Plan Garonne”. The city has 215 sq. ft green spaces per inhabitant.



The number of cyclists in Bordeaux has tripled in ten years, taking advantage of cycling network of 400 miles and supported by advanced bicycle stop bars at intersections, contraflow bike lanes traffic and “parcours malins” (smart routes) with green pavement marking. In addition, starting in 2003, « La Maison du Vélo » (house of the bikes) has put bicycles at citizens’ disposal free of charge. Today, this organisation manages a fleet of 4000 bicycles. In 2008, the City will implement a bike rental system similar to Paris and Lyon, with 800 bicycles available at 80 locations throughout the city for 2 euros per hour (half with a pass). The City has not yet decided if the system will be funded by the municipality or by advertising. The Transportation Master Plan has a target to double the cycling mode share by 2010, reaching 7%.

The city has also implemented other initiatives such as Car Free Days (called “Dimanche à Bordeaux”). On the first Sunday of every month, cars are excluded from the heart of the city between 9 a.m. and 6 p.m.

A major policy direction for the city is to dedicate a maximum of 50% of public space to cars in all new roadway construction/renovation. The city is also enhancing the pedestrian environment by protecting sidewalks from being infringed on by illegal parking and creating a “green” network connecting green spaces within the city.

Private cars

In order to improve traffic flow and safety, Bordeaux has set up an efficient centralized traffic management system called “Gertrude”. In real time, the system adapts the ‘green time’ of each traffic light at each junction in accordance with the strategic choices of local representatives and city technicians (safety arrangements near a school at the end of the school day, assistance to buses to ensure they are on time, reduction of traffic volumes on a specific road, etc.)

This system aims to:

- ensure absolute priority for the fire service, ambulances, and police;
- reduce impacts on air quality;
- improve the speed and reliability of transit;
- manage safety and the movements of bicycles and pedestrians; and
- shorten journey times for all users.

The city maintains a traffic information service “Info Traffic” that provides real-time traffic information through the web www.circulation-lacub.com or by phone. In addition, the city has a free carpooling website, www.covoiturage-lacub.com, on which citizens can register as potential drivers or check for available carpooling options for their trips.

The CUB also encourages private initiatives like the implementation of “Plan de déplacements des entreprises” (employer transportation plans) which promote alternative commute options (partnerships with transit operators, inform for employees on transportation alternatives, company participation in transit pass purchases, promotion of carpooling, dedicated carpooling parking spaces, encouragement of telecommuting, bike parking, showers and changing rooms, etc.) This program is partially funded by the government under the “Programme National d’Amélioration de l’Efficacité Énergétique” (national program to improve energetic efficiency).

Next steps

The city is still working to reorganize the bus network so that it will reach the goal of 150 riders per year per capita, to come closer to the best French networks with tram services.

The ambitious bus revitalization policy is made difficult because of earlier policies that favored car-oriented development (numerous one-way streets and the implementation of Gertrude (automated traffic operation)).

However, the CUB is now supporting:

- The implementation of a new transportation plan to revert streets back to two ways operation for better bus network clarity;
- Initiatives to improve conditions for buses operating in mixed traffic including corridor studies going examining contraflow movements;
- Development of Bus Rapid Transit services for areas not served by tram lines in the mid-term;

Bordeaux CBD Transit Map



Detailed Case Study 2: Brisbane, Australia



Criteria	Brisbane	San Diego
Robust Regional Transit (Rail)	Yes	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Inner City Loop Service	-
CBD Transit Hub(s)	Myer Center Bus Station, Busway and two rail stations	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	Two on edges of CBD	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	One university	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	1.82M (Greater Bris) 0.957M (BCC:2004)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	3.8 (Greater Bris)	13 (City)
Riders per capita	2002M Patronage 45.4 (rail) 45 (bus) 3.4 (ferry)	31
Sustainable transportation mode share (transit, walking, cycling)	City Wide: 23% (2001) 19%(2004)	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	n/a	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	10%	5.76%
Parking spaces per 1000 jobs in CBD	505 (Aus/NZ average) 350 (Brisbane)	767.4
Climate	77°F (January) 59°F (July)	57°F (January) 72°F (July)

Summary of achievements, measures and policies

- Australia's largest exclusive busway network, built to a high standard including underground stations in the CBD.
- Introduction of the City Cat ferry system in 1996 which has seen patronage increase from 400,000 passengers / year to over 4million passengers per year;\
- 185 miles of cycle paths
- More than 12 miles of transit lanes
- Over 500 low floor air conditioned, compressed Natural gas buses
- An increase in bus patronage by 45% on core services
- Fully electrified modern urban and interurban passenger rail network (South East Queensland)



Photo: Brisbane CBD looking North West, (Gabba Cricket Stadium in the foreground)

Brief description of the transportation system

Since the original Brisbane Transport Study was completed in 1965, the metropolitan population has significantly dispersed and the region has developed at relatively low densities.

Past development of the road network has been significantly influenced by:

- The winding Brisbane River, which includes many long segments without a bridge crossing. The entire city has only five bridges across the river for private vehicles, plus two bus-pedestrian-bicycle bridges and one bicycle-pedestrian bridge. These bridges inevitably become chokepoints.
- A highly radial road network focused on downtown, which often has the effect of forcing traffic through downtown even if it is destined elsewhere.

- Large tram system shut down by 1969 (replaced by diesel buses) with freeway development in same period. The South East Freeway and Riverside Expressway opened but the proposed Northern Freeway was never built following significant community protests.

The rail system has also developed on a radial basis remaining on late 19th century alignments. There are eight major passenger rail corridors connecting the city to its suburbs, some with mixtures of local and express service. All eight corridors pass through three stations in the greater downtown/Fortitude Valley area.

Rail service, operated by the state government agency Queensland Rail, underwent a major transition in the 1980s updating its rolling stock, some of which dated to 1911. The urban system was fully electrified by 1986, and interurban electrification including a new link to the Gold Coast opened during the 1990s. A new rail bridge over the Brisbane River also opened in 1978 linking South Brisbane with Roma Street, finally linking the north and south side suburban rail systems as one unified network.

New air-conditioned electric trains were introduced, an important feature given Brisbane's humid summer climate. Rail service remains operated on a relatively labor-intensive two person crew, commuter rail model. Typical frequencies are 15-30 minutes in off-peak hours, well below the standards of urban light rail or urban metro.

The Brisbane bus system is directly operated by Brisbane Transit, a business unit of the Brisbane City Council, as were the trams prior to 1969. This is unique amongst Australian state capital cities. The Queensland State Government does contribute significant funding, and Brisbane City Council ratepayers have also made a major contribution to annual operating expenses.

The state government, under the Translink agency, has now moved to directly fund all transit operations in South East Queensland, including making key service planning decisions, which traditionally were made by the Brisbane City Council with limited state oversight. The Brisbane City Council will continue to contribute significantly, and retain some say in service decisions. This process of transition is still being worked through.

Somewhat in response to the major improvements to the urban rail service, declining bus ridership as well as responding to dispersed suburban development, Brisbane Transport launched a new network of Cityxpress limited stop, all day, seven day, bus services. These services focused on fast links between new housing developments and the Brisbane Central Business District, the dominant employment location and a key recreational destination for Brisbane and South East Queensland.

The Cityxpress services were added during the 1980s and 1990s over the top of the existing traditional all stops local bus network. The Cityxpress network has expanded to over 20 such routes system-wide (including one Great Circle Line linking key regional retail centers). Together with the key (old tram) arterial alignment, local bus lines form the core of the Brisbane Transit system. The new SouthEast and Inner Northern busways have largely worked to support many of these lines, with a major focus on frequency and speed improvements for these lines.

Long-distance bus and rail services all converge on the Roma Street rail station, where they have their own platforms alongside those of the suburban rail network. In 2009, a new downtown segment of the Busway system will open, bringing suburban buses directly through Roma Street station for direct and seamless connections among modes.

As a result of the above factors, cross-town or circumferential routes were not planned on a comprehensive basis. Brisbane has outer-orbital freeways on only two sides, the east and south. Physical constraints including the



mountainous regions to the west and Moreton Bay to the east and the rapid development south to and including the Gold Coast effectively ensured that the predominantly north/south expansion continues. Expansion is also active in the north towards the Sunshine Coast. The end result will be a continuous urban development for over 200 km north-south.

In 1995 the State Government and the Brisbane City Council adopted the busway strategy for Brisbane City. This has seen the progressive implementation of a network of busways as illustrated in the diagram below. From an urban planning perspective, the intent of the busway network is to link the CBD with the region's other major retail centers, and to assist both the CBD and the other centers in developing in a more mixed-use way, with greater residential density.

In the last 20 years the CBD has shifted from being predominately a place of commerce and retail to a mixed use centre with an increasing proportion of residential development. This trend is expected to continue and to extend to other centers located on the busway or rail networks.

Compared to many other cities, Brisbane CBD remains a very strong employment center, with some leakage to surrounding suburbs. However, relatively low levels of employment have been lost to regional centers such as Upper Mt Gravatt and Chermside in the north.

The regional centers are generally retail focused, often around a Westfield or other indoor shopping mall. Transit supports these locations in their own retail function, but they also act very effectively as portals to the transit system for CBD travel, due to high available service frequencies from the merging of key transit lines on their path to the CBD. All major regional centers are on or proposed to be on the busway network.

Key also to transit's success in recent decades was a culture developed around the transport plans for the 1982 Commonwealth Games and the 1988 World Expo, both of which relied heavily on transit access.

Achievements, measures and policies

The 80's....

- Rail System overhaul (electrification, new air-conditioned trains) plus linking of southside and northside rail systems;
- Hosted Commonwealth Games and World Expo with huge focus on transit access;
- Queen St pedestrian mall implemented in 1982, and expanded in 1988, with opening of Myer Center underground bus station in the heart of the CBD retail core.
- Cityxpress Bus Network progressively implemented.

The 90s....

Operating funding remains a major issue. No dedicated operating funding linked to revenue has been provided since 1992. Previously, every \$ of fare revenue received a \$0.60 subsidy. In the belief that the Brisbane City Council bus system was inefficient, this funding arrangement was eliminated by the state government, with a locked in subsidy set in 1992, adjusted only for inflation.

A significant focus for Brisbane Transit has therefore been on improved transit service efficiency, with a new Transit network implemented for Brisbane Transit by 1999, focusing on simplifying/rationalizing the old bus system (much inherited in the 1940s/1950s from private operators) and improving the key Cityxpress and major local lines. Significant work rule changes were also implemented for bus operators and major reductions in garage and office staff were made.

To date, no new operating funding mechanism has replaced the old system. Service changes therefore require extensive negotiation and a funding agreement to be reached between Brisbane Transport and Translink, This leads to very slow responses to significant ridership growth stimulated by the busways and improved service frequencies, with significant public complaints.

Pedestrian Focus

Following on from the Queen Street pedestrian mall initiative, around 1995 the Brisbane City Council administration made the decision to continue to prioritize pedestrian movements over all other traffic movements and initiated a program to widen the inner city sidewalks (eg Albert St, George St, Adelaide St).

The inner city one-way road system allowed for the reduction of vehicular capacity from 4 lanes to 3 in most instances. Where there was a critical bus demand (eg Adelaide St) the widening of sidewalks was limited to ensure two lane traffic plus curb side bus bays were maintained

As an indication of the emphasis that Council placed on wider sidewalks, the administration would not accept a reduction in the sidewalk widening (ie George St) to facilitate the then proposed light rail (1999); although the light rail proposal had many other challenges.

The urban design opportunities which have been pursued as a result of wider sidewalks include:

- Landscaping and creation of natural canopies;
- Outside dining;
- Street art;
- A requirement for new development to provide wide awnings over the sidewalks to provide shade and shelter; and
- Establishing a sidewalk design manual for the CBD to set a standard for high quality and consistent design of the sidewalks to including signage design.

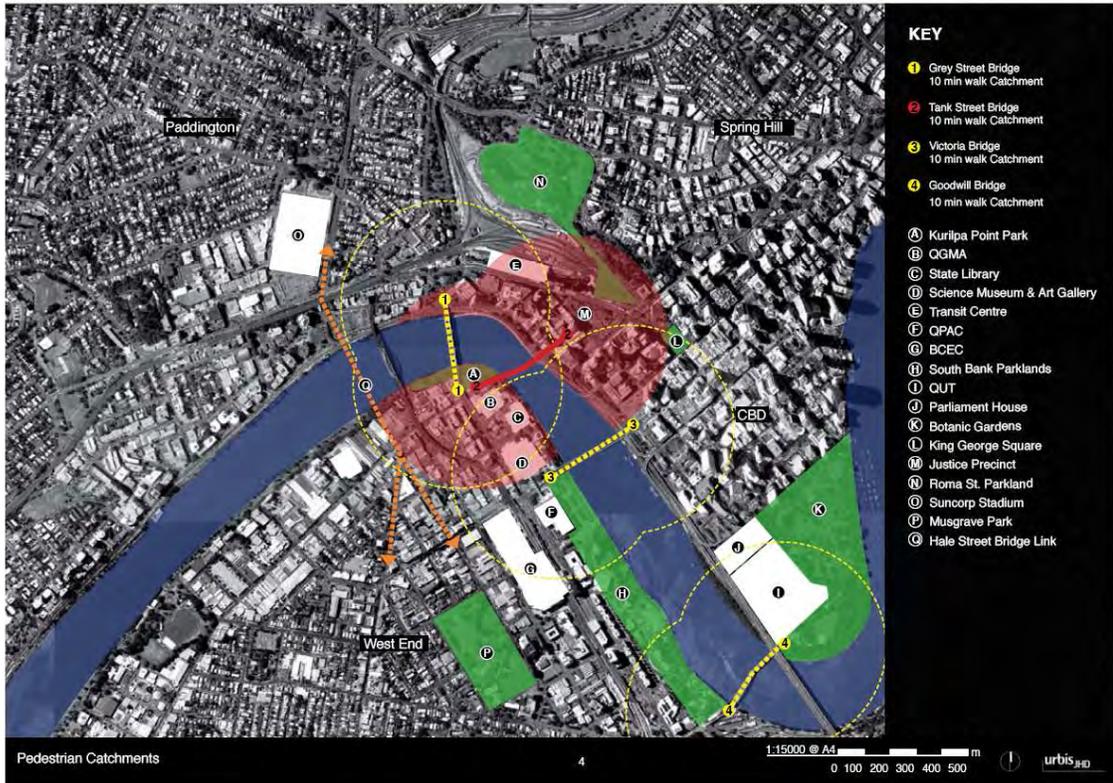
The development of “green bridges” was given priority in the late 90s with the development of Goodwill bridge (pedestrian /cycle only) in the CBD linking the CBD to the South Bank precinct. Another pedestrian bridge currently under construction (the Tank St Bridge) will be approximately 800m upstream of the Goodwill Bridge. A third green bridge, for pedestrians, bicycles, and buses, is located at the University of Queensland upstream from downtown, opening in 2007.

The Green Bridge gives transit a huge competitive edge over the cars for access to the University of Queensland, one of the most significant employment and educational locations in South East Queensland. Trips can be up to 30 minutes less by transit than car due to lack of a car bridge from the southern and eastern suburbs direct to this key location.

The photo below illustrates the location of the Tank St Bridge on the western side of the CBD.



The diagrams below illustrate the pedestrian catchments and cycle paths surrounding the Tank St Bridge.



Traffic Management

Other traffic management and design measures which have been implemented throughout the CBD since the 90s include:

- Retaining a 90 second cycle time on most of the traffic signals thereby minimizing pedestrian delay;
- Having 4.0m wide pedestrian crossings at signals (usually only 3.0m);
- Speed limits (eg 40km/h from 10:00pm – 2:00am Friday, Saturday in Fortitude Valley) at times unique to the peak pedestrian demand;
- Ensuring all ramps are wheel chair friendly;
- Establishing a policy of only providing short term on-street parking and giving priority to loading zones, bus bays and taxi zones;
- Pay and Display ticking systems to reduce unnecessary street furniture – and improve security;
- Improving lighting for personal safety; and

Next Steps

In 2006, the Brisbane City Council released its draft City Centre Master Plan. The planning horizon for the plan is 2026. This document sets the strategic direction to further develop the city. Key elements of the vision for the CBD include:

- An integrated transportation network; and
- Pedestrian friendly and cycle friendly streets and spaces.

The Transport strategy of the plan seeks to:

- provide an integrated public transport system – trains, buses, ferries, mass transit – and pedestrian and cyclist network, developed in collaboration with the State Government and linked to public domain and development opportunities;
- staged implementation options;
- Reorganize the road network to improve the pedestrian environment in the city heart, provide pedestrian access to the river and maintain efficient car access; and
- Introduce a parking strategy that maintains access and supports macro-initiatives such as new busways and park 'n' ride stations.

Transit

Key transit-related next steps in the Master Plan include the following:

New Mass Rapid Transit

- Undertake a pre-feasibility study to provide a preliminary estimate of the costs, infrastructure and subsidies that would be associated with a new mass transit system connecting the dense West End peninsula to the city centre via a future Adelaide Street Bridge and continuing to Fortitude Valley. Light rail or streetcar technologies are commonly discussed.

Rail

- Work with the State Government to investigate new rail alignments and station, incorporating a comprehensive underground rail loop with new railway stations in the city centre, to:
 - provide additional rail capacity
 - improve safety
 - Service a wider catchment in the inner city.
- Secure the preferred alignments and station requirements for future development. Ensure development is planned around these future stations and promote the new stations as an integral part of the development

projects, with opportunities provided for activation along pedestrian access ways in the stations themselves.

- Improve access to existing rail stations, with more direct pedestrian connections taking advantage of opportunities created through redevelopment.
- Advocate for enhanced integration between train services and cyclists, for example through provision of a dedicated carriage for bikes on trains services.

Bus

Major improvements to bus service are coming in the short term with the completion of the underground connection between the Inner Northern Busway and the Southeast Busway, including two new stations downtown and a new direct bus-rail interchange point at Roma Street Station, which is also the terminal for long-distance trains and buses. In addition, next steps include:

- Investigate an underground bus loop connected to a system of conveniently located bus stations. Passengers could access the whole bus network from one place, making interchanges easily and without needing expert knowledge to navigate the network.
- Provide additional priority Busway connection entries to the city centre through congested points, for improved access and travel times from all parts of Brisbane.
- Investigate expansion of the high-frequency bus loop network to service major activity and community nodes in the fringe. Develop an operational strategy and supporting infrastructure that distributes people more effectively.
- Investigate the rationalization of bus stops along streets. (This complements the longer-term strategy of relocating services to a series of bus stations).
- Continue to upgrade the bus fleet to air-conditioned, low-floor, compressed natural gas buses and ensure appropriate emission standards through maintenance and vehicle emission testing.
- Ensure the design of new bus infrastructure includes adequate seating (in close proximity to the actual bus stopping location) and access for disabled and able persons, for example including escalators, stairs and lifts to access underground areas.
- Continue to provide for bicycles on buses and expand these opportunities.

Ferry

- Implement a revised ferry network through the development of new ferry terminals in partnership with the development industry.
- Continue to purchase new vessels to accommodate growth in patronage of services to, from or through the city centre.
- Improve legibility and accessibility to individual ferry terminals, such as replacement of stairs and steep ramps and inclusion of lifts where necessary. Integrate access with the broader public transport network and tourism-related river travel services. This will support use of the river as a recreational resource and means of transport. Investigate potential for these enhancements to occur as an integrated part of demonstration projects such as North Bank.
- Include ferry terminals in a 'way finding' signage strategy to enhance the river city focus of the city centre and its attraction for visitors. As part of this strategy, highlight and prioritise ferry stops that are part of multi-modal interchanges, along with those linking the CBD to higher density residential areas beyond the CBD.
- Reinforce the tourism potential of ferry transport, including opportunities for continuing smaller single hull wooden ferries that exhibit a traditional character, to compliment the cruising advantages provided by the faster CityCats.
- Evaluate the alternative provision of ferry services rather than new pedestrian bridges on a case-by-case basis. Advantages of ferries may include their relative affordability and revenue generation potential, and accessibility for people with disabilities or less mobile, for whom walking is not a viable alternative.

TransLink ferry map and zones effective 2 July 2007

TransLink fares

zone	adult fares					non-resident fares						
	single	daily	off-peak daily	weekly	monthly	10 trip ^a	single	daily	off-peak daily	weekly	monthly	10 trip ^a
1	2.30	4.60	3.50	18.40	73.60	18.40	1.20	2.30	1.80	9.20	36.80	9.20
2	2.70	5.40	4.10	21.60	86.40	21.60	1.40	2.70	2.10	10.80	43.20	10.80

Prices are in \$AUD and include GST.
^a Brisbane Transport 10 Trip Smart Sockets are valid for travel on BCC ferry and Brisbane Transport bus services only.

how to calculate fares

Fares are calculated on the number of zones you use in your journey. All Brisbane City Council ferry services are in TransLink fare zones 1 or 2. This means the maximum adult ferry fare is \$2.70.

To calculate your fare, look at the zones you travel in on your journey. Subtract the lowest zone you will be travelling in from the highest zone you will be travelling in, then add one – this formula calculates the correct number of zones you will be using.

For example, if you are travelling from Bretts Wharf (zone 2) to QUT (zone 1), you are travelling through two zones (2-1+1 = 2) which is \$2.70 for an adult fare.

An example of an integrated trip is catching a train from Sunnybank (zone 4) or a bus from Eight Mile Plains busway station (zone 4) to South Bank (zone 1) and then a ferry to New Farm Park (zone 2). This is a four zone trip (4-1+1=4) and would cost \$3.60 for an adult fare.

TRANSLink www.translink.com.au 13 12 30 Queensland Government Connected Transport

Taxi

- Continue to work closely with the taxi industry to improve the safety and operations of taxi ranks in the city centre.
- Ensure taxi ranks are provided in a manner that maximizes customer convenience and safety, through:
 - Reviewing the location of taxi ranks in conjunction with the new road network
 - Ensuring ranks are located at places of highest demand
 - Managing curbside space so that taxi ranks are at key locations and meet the operational needs of the industry
 - Introducing more taxi drop off zones for pedestrian safety.

Non-motorized modes

Key next steps for the non-motorized modes include:

Pedestrians

- Increase the area available to pedestrians by:
 - Curb build outs and wider crossings areas;
 - Increasing sidewalk widths
 - Ensuring location of bus stops does not impede pedestrian movement
 - Reviewing bus stop locations in Adelaide Street, Ann Street, Creek Street, Wharf Street and Alice Street as a priority
 - Relocating traffic sign posts which impede pedestrian flows.

- Manage the interface between pedestrians and adjoining land uses, including outdoor dining, to ensure land uses do not restrict pedestrian movement, particularly in peak periods.
- Develop and implement an integrated way-finding strategy to enhance legibility of the pedestrian network, including a coordinated signage plan.
- Install pedestrian road crossings mid-block to connect the shortest route for walking through arcades at mid-block. Priority could be provided for pedestrians at these crossings using quick-response, push traffic activators.
- Manage traffic speeds on important pedestrian routes by changing the traffic environment (e.g. more landscaping, bike lanes, mid-block crossings, curb build-outs and narrower sight lines).
- Introduce a 30kph speed limit at night time if there is a high potential for conflict with intoxicated people.
- Improve pedestrian priority, safety and accessibility at intersections. Ways of achieving this include:
 - Ensuring right turn traffic phases do not conflict with pedestrians at signalized intersections
 - Remove high-speed free left turn slip lanes
 - Sequential coordination of traffic signals for pedestrians (i.e. walk phase) to reduce delays on important pedestrian commuting routes (such as George Street) and recreation routes (such as Albert Street)
 - Pedestrian priority at traffic signals at lunch time with longer walk times
 - Provision of scramble pedestrian crossings at intersections with high pedestrian demand.
- Undertake a detailed audit of key pedestrian links to investigate:
 - Tactile paving – install at hazard points, particularly intersections
 - Audio cues – provide and maintain them at all signalized intersections
 - Obstructions – remove or relocate obstructions and integrate furniture (i.e. bins can be integrated with single poles).

Cyclists

- Redesign intersections to improve convenience, safety and connectivity for pedestrians and cyclists.
- Provide a safe and convenient cycle network for movement within the city centre. These initiatives are largely incorporated within each demonstration project.
- Enhance the quality and extent of the Bicentennial Bikeway and Riverwalk by ensuring future works provides uniform paving surface markings and a minimum of four meters.
- Undertake education programs for both cyclists and pedestrians about the safe use of shared bike and pedestrian paths. However, continue a works program to separate pedestrians and cyclists where safety concerns are unlikely to be otherwise resolved.

Parking

Next steps on parking include:

- Expand Park and Ride facilities at existing rail stations and bus interchanges to encourage unnecessary traffic to stay out of the city centre, and develop further Park and Ride facilities, for example by ‘anchoring’ future busways, in areas where the impact of generating additional trips can be accommodated without disadvantaging the surrounding community. These facilities will integrate with enhanced bus, train and ferry public transport services.
- Develop a curbside management framework to manage the location of crossovers and allocation of curbside uses.
- Encourage use of scooters and motorbikes by providing additional fee/inexpensive parking and infrastructure.
- Review the extent of the city frame parking area where specific parking facilities and a cap on long-term parking numbers.

Detailed Case Study 3: Portland, USA



Criteria	Portland	San Diego
Robust Regional Transit (Rail)	LRT Network; streetcar	LRV yes, Heavy Rail no
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Fareless Square	-
CBD Transit Hub(s)	Transit Mall	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	2.3M (Metro area) 537,081 (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	15.4 (City)	13 (City)
Riders per capita	206	31
Sustainable transportation mode share (transit, walking, cycling)	Transit 10% Walk 4% Cycling 6%	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	13.8%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	4.5% (includes Tri-County & Vancouver)	5.76%
Parking spaces per 1000 jobs in CBD	157	767.4
Climate	41°F (January) 69°F (July)	57°F (January) 72°F (July)

Summary of achievements, measures and policies

Since the adoption of the Downtown Plan in 1972, downtown Portland has seen a coordinated effort to transform downtown from a car-dependent place that was largely abandoned in the evening to a dense and vibrant center where people live, play, and work – widely regarded as one of the best-planned and most pedestrian-friendly downtowns in North America. Key achievements have included:

- An integrated public transit system, including extensive regional light rail, an inner-city streetcar, and an extensive bus network, all operating under a single agency with integrated fares.
- Policies that manage downtown street space for all modes, giving appropriate priority to transit and bicycles, with a primary focus on the pedestrian.
- The Transit Mall, two streets through the center of the city largely reserved for buses. (Light rail will be added in 2009.)
- A downtown free-fare zone, permitting bus and rail services to be used without charge for short trips within the downtown.
- The Portland Streetcar, which has supported mixed-use development along the western and southern edges of downtown.
- A history of reclaiming obsolete car-based transportation infrastructure for parks and pedestrian spaces.
- Policies that limit the growth of parking downtown, including pricing that welcomes short visits for shopping and errands but discourages all-day parking by commuters.
- An extensive region-wide bicycle network, with policies to encourage cycling.
- Car-sharing programs, including America's first car-sharing company.
- Planning institutions, and a planning culture, that encourage transportation and land use to be thought about together.

Brief description of Portland and its transportation system

Portland is Oregon's major city and a key crossroad in the Pacific Northwest, where Interstate 5 crosses the Columbia River. Most ocean-going freight vessels can reach Portland via the 100-mile navigable stretch of the lower Columbia River. Portland's economy was long dependent on these port functions, and the Port of Portland remains a major player in the economy and life of the city.

Portland has a complete system of freeways extending north, south, east, and west, plus an outer-eastside bypass freeway (I-205) and an inner downtown bypass freeway (I-405). The loop formed by I-5 and I-405 largely defines the extent of the traditional downtown. Portland has dropped many plans for more freeway construction, and there is virtually no political support for further urban freeways, except in some outer suburbs.

Portland is known for transit system, which is of a very high quality by North American standards for cities of its size and age. It includes:

- Three light rail lines totaling 44 miles, extending east, west, and north of the city and meeting in downtown. An additional line is under construction and others are planned.
- A single streetcar line, the Portland Streetcar, which connects the downtown with high-density inner-city areas to the north and south, an end-to-end distance of 3.6 miles.
- An extensive bus system, including a high-frequency grid covering the dense area of the City of Portland and trunk-and-feeder service patterns focused on suburban transit centers.
- A single aerial tramway connecting two campuses of Oregon Health Sciences University, one on a hilltop and the other next to the river, both just south of downtown.

A single inter-suburban commuter rail line west of the city is also under development.

Tri-Met is the operator of all bus and rail services in the metropolitan area, though contiguous suburbs in Clark County, Washington have their own agency, called C-Tran.

Achievements and policies in downtown transportation

Brief History

Tri-Met was formed in 1969 in response to the likely collapse of the private Rose City Transit Company, which had long served the city on a for-profit basis. The 1950s and 1960s had seen significant decline in transit ridership.

The 1970s proved to be the pivotal decade in the development of Portland's successful downtown. The 1972 Downtown Plan first articulated the goal of increasing public transit and pedestrian circulation and reducing reliance on the automobile. The mayoralty of Neil Goldschmidt in particular, (1973-79) provided crucial leadership in turning Portland away from car-based planning, and thus revitalizing the then-flagging downtown. An extraordinary range of initiatives date from this period, including:

- Demolition of the downtown waterfront freeway to create Tom McCall Waterfront Park.
- Cancellation of the Mt. Hood Freeway project, with federal funding redirected into the first light rail line (see below).
- A downtown free-fare zone called Fareless Square, implemented in 1975 and since expanded into the Lloyd District, which lies just across the river from downtown.
- The downtown Transit Mall, (1977) which removed most auto traffic from two streets through the very heart of downtown and devoted these streets largely to buses and pedestrians. Buses have two lanes in each direction, permitting them to pass each other in a skip-stop pattern without being disrupted by other traffic. Both streets were rebuilt with brick paving, wider sidewalks, landscaping, information kiosks, and public art to make them attractive to pedestrians. The Transit Mall is credited with stimulating new downtown construction and helping sustain retail activity. It was expanded in 1994 to Union Station, opening up access to Chinatown and the Greyhound and Amtrak stations. After 30 years of successful operation, the Mall is now being rebuilt to add a light rail line.

In 1978, the Metro organization was established to oversee future regional development, as authorized by Oregon's groundbreaking 1973 land use planning laws. This agency identifies and maintains an Urban Growth Boundary aimed at protecting livability and restricting sprawl, and is also responsible for integrated planning of transport and land-use on the regional level. Under Metro's leadership, as well as that of the cities, efforts have been made to support development along the proposed light rail corridors, with various incentives offered to developers. While pressure to sprawl continues, and the Urban Growth Boundary has been moved to accommodate growth pressures, Portland remains a leader in infill development, including many successful Transit Oriented Developments around rail stations.

Since the 1970s, Portland has continued to develop in the same spirit, with an increasing emphasis on infill development and a growing high-density and mixed-use downtown. The light rail system has continued to expand along with continued improvement of the bus system.

A crucial feature of Portland's transit system is the complete integration of modes and fares. Fares for bus, rail, and streetcar services are determined by both time and distance, but the fare for travel between two points is the same regardless of the mode used, and regardless of whether the trip requires a transfer.

More recent technological innovations include the Portland Aerial Tram and the Portland Streetcar, discussed below.

MAX Light Rail

The LRT system is known as the MAX (Metropolitan Area Express). Encouraged, in part, by the success of the first San Diego Trolley line in 1981, the first MAX line opened in 1986 connecting Portland with its eastern suburbs. Since then, three new lines have opened and a fourth is current under development.

Unlike San Diego's 1981 starter line, which was designed to be inexpensive, the Portland light network was designed to a fairly high standard, including architecturally distinctive stations with amenities such as large shelters, phones, information displays, generous lighting, distinctive paving and landscaping. Some of the outer suburban stations were also designed with large Park-and-Rides. (Stations in the within about five miles of downtown do not have Park-and-Ride; all access there is by frequent connecting buses, or by dropoff, walking, or

cycling.) Rail cars were developed for the system as opposed to using existing light rail car designs from Europe. The rail car fleet was initially high-floor, but is gradually being converted to low-floor cars that welcome wheelchairs and bicycles.

The goals that were set out for this service included: a) link neighborhoods with a convenient and attractive transportation alternative; b) fit the scale and traffic patterns of existing neighborhoods; c) reduce short inner-city auto trips, parking demand, traffic congestion and air pollution; d) encourage development of more housing and businesses in the Central City; and e) provide quality service to attract new transit ridership.

The MAX Westside extension (18 miles including twin 3-mile tunnels under West Hills) opened in 1998, linking with Beaverton and Hillsboro, through the fast growing high-tech center Washington County. This extension operates as a continuation of the original Portland-Gresham line, and is called the Blue Line, operating two-car trains.

The Portland International Airport MAX Red Line 5.2 mile extension opened in 2001, and the interstate MAX Yellow Line 5.8 mile extension opened in 2004. These lines operate with either one or two-car trains. The overall MAX system is currently 44 miles with 64 stations, served by 105 LRV cars.

Construction is currently underway on the I-205 Transitway MAX Green Line extension (Gateway Transit Center to Clackamas Town Center – 6.5 miles) that will operate along the downtown Transit Malls, originally established for bus operations. An additional 21 LRV cars are being delivered in 2008 and the Green Line is due to open in September 2009. Further lines are under development.

Streetcar

Following the successful implementation of light rail service, residents and business community started to investigate ways to translate the service enhancements of the regional light rail system to a scale that would benefit smaller scale neighborhood areas. This thinking led to the development of the Portland Streetcar.

In 1995, the Portland Streetcar, Inc. was selected to build, operate, and maintain the streetcar system. Following three years of construction, the initial line opened in 2001 between Legacy Good Samaritan Hospital and Portland State University. The line has been extended twice and now operates a fleet of ten cars over a 3.6-mile long route with 40 platforms, serving Riverplace and the South Waterfront and linking with the aerial tram connecting the southwest waterfront and Oregon Health Science University.

The Portland Streetcar remains a very locally-oriented service, designed for relatively short trips within the greater downtown. Unlike light rail, the Streetcar is mixed with traffic on most of its route, though some provisions are made to protect it from major congestion. It stops roughly every three blocks, providing access at the expense of operating speed.

The Streetcar has undeniably helped to galvanize a dramatic redevelopment of the inner-city area that it serves, including the large and very dense Pearl District in former industrial area on the north edge of downtown.



Commuter Rail

No commuter rail services operate into the City of Portland. A single inter-suburban commuter rail line is under development in the western suburbs. The line will connect a light rail station in Beaverton with Tigard and Wilsonville to its south. The entire corridor features extensive suburban office park employment. It will run a limited peak-period service.

Bus Services and the Frequent Network

Tri-Met operates a fleet of 660 buses, including standard 30-foot and 40-foot coaches and minibuses. In the denser parts of the City of Portland (corresponding roughly to the extent of the city in 1945) the system is designed on a grid principle, with high-frequency routes running north-south and east-west. In lower-density suburbs, service is organized on a timed-transfer principle: Infrequent feeder routes are scheduled to meet at a transit center at the same time each hour, for connections to each other and to Light Rail or frequent bus service into the city.



In 1998, Tri-Met began a major upgrade of its busiest bus routes, with the implementation of the Frequent Service network. The Frequent Service network consists of all lines that run every 15 minutes or better all day, so that passengers can use them without consulting a timetable. These lines were given BRT-like improvements that include traffic signal priority, curb extensions, low-floor buses, improved passenger amenities and improved access to stops. When the project began in 1998, four bus lines had 15 minute or better service. Today, the Frequent Service network includes 16 bus lines with 164 miles of service, in addition to three MAX lines with 44 miles of service.

The Frequent Network is a very important conceptual innovation. Most transit agencies present a system map showing all the routes, often producing a confusing tangle that is hard to understand. Tri-Met encourages riders to notice and use the Frequent Network, which is the portion of the system where waiting times are short and transfers are easy. The Frequent Network services visually stand out on the full system map. In addition, Tri-Met publishes a separate Frequent Service diagram, intentionally similar in look to a subway map (see figure).

Alternative Transportation

The first carsharing organization in the United States was started in Portland in 1998.

The city is particularly supportive of urban bicycling and has been recognized by the League of American Bicyclists among others for its network of paths and other bicycle-friendly services. The city's bicycle network is well-connected and signed, and includes off-road recreational trails, bicycle lanes on arterial streets, and connected systems of minor streets, often permitting through-access for bicycles and pedestrians only. These designated bicycle routes typically have bicycle-activated signals wherever they cross an arterial.

The city is currently looking at expanding its carsharing concept to bicycles similar to [the "Velo'V" system](#) (Lyon, France) and the ["Cyclocity" system](#) currently used in Brussels.

Downtown Planning Policies and Achievements

Since the 1970s, Portland's downtown planning has focused on creating and enhancing a pedestrian-oriented place. The downtown is widely regarded as one of North America's most pleasant and walkable.

The pedestrian scale of Portland's downtown has been carefully enhanced in the last 35 years of planning, but it also benefits from one decision made in the 19th century: the blocks are just over 200 feet long on each side, much smaller than the North American average. (Typical downtown San Diego blocks are just a bit larger, about 250 feet x 300 feet.) Small blocks mean frequent street crossing opportunities and little opportunity for visually overpowering building masses.



In its concern to create a vibrant and attractive place, Portland has not been afraid to remove obsolete transportation infrastructure to create parks and other amenities. In the 1970s, the Harbor Drive freeway, which separated downtown from the riverfront, was demolished to create Tom McCall Waterfront Park, which runs the entire length of the downtown riverfront. In 1984, a parking structure formerly owned by a downtown department store was purchased by the city and became Pioneer Courthouse Square. Widely known as "Portland's Living room," the square is a very successful one-block park, mostly of hard surfaces, featuring

programmable spaces, small retail opportunities, the underground transit information centre, and a water feature. Its success is tied to its position near the center of the downtown, and the crossroads of the transit system, so that it is animated by a constant flow of pedestrians while also serving as a destination in itself.

While making significant investments in public transit and alternative modes, Portland has also taken steps to manage private car access into the downtown. From 1975 until 1996, Portland maintained a controversial "parking cap" policy, legally limiting the availability of parking. This policy has now been replaced by policies that permit parking to occur with development, but which still impose maximums on the amount of parking that can be supplied in relation to development size. Parking charges in the downtown are very high for all-day commuter parking, but affordable for up to four hours to make the downtown readily accessible for shopping and errands.

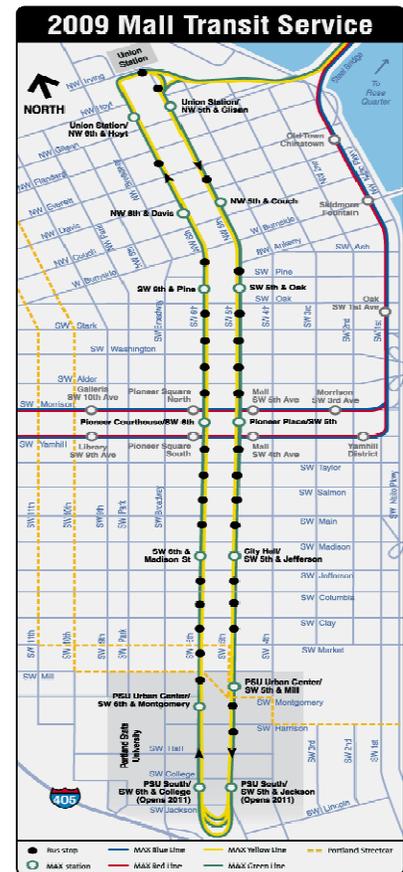
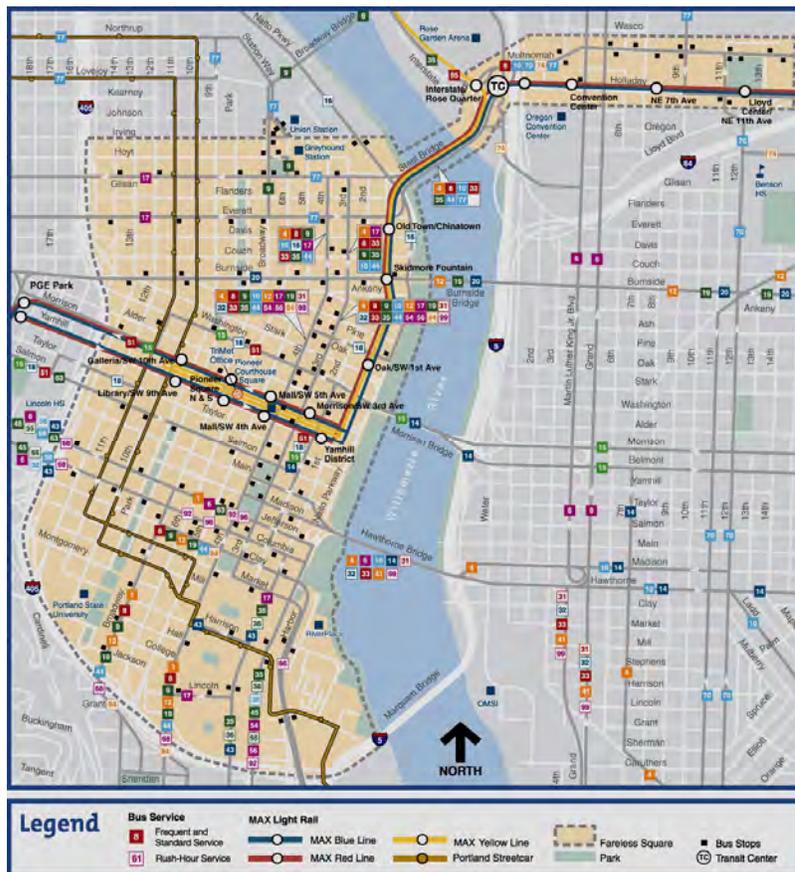
Next Steps

Downtown Portland is expected to continue growing rapidly, through infill and redevelopment, even as the city also grows denser overall. As more people choose to live in transit-friendly and pedestrian-friendly places, the greatest challenges will be to fund continued growth in transit service and infrastructure.

Key next steps in the development of downtown transportation include the following:

- The Transit Mall, currently closed for reconstruction, will reopen in 2009 with a new light rail line running along its full length, from near Union Station at the north end of downtown to Portland State University at the south end.
- Planning is underway for a light rail line extending south from downtown. Light rail lines already extend north, east, and west from downtown.
- A Streetcar System Plan is currently exploring next steps for expansion of the Portland Streetcar system.
- The City is looking to shift its funding base for road repair away from the gas tax, since gas tax revenues, which are assessed on a per-gallon basis, have been declining due to increased fuel efficiency of cars. On January 9, 2008, the newspaper of record, the *Oregonian*, endorsed a utility fee (\$4.54 per month per household) that the City is proposing to fund its road repair functions. These functions are important for public transit, cyclists, and pedestrians as well as for cars.
- Bicycle projects continue throughout the city. A key current project is the introduction of bus lanes on the Morrison Bridge, a key route into downtown from the dense east side.

Downtown Portland, showing current MAX and streetcar lines. (Transit Mall on 5th & 6th Avenues is not marked, as it currently closed for reconstruction.)



Detailed Case Study 4: Vancouver, Canada



Criteria	Vancouver	San Diego
Robust Regional Transit (Rail)	LRV yes, Heavy Rail Yes	LRV yes, Heavy Rail Yes
Robust Regional Transit (Bus)	Yes	Yes
Special CBD Transit Circulation	Proposed	-
CBD Transit Hub(s)	Yes	Santa Fe Depot
Peripheral Hub with Forced Transfer	-	-
Strong Downtown Business	Yes	Yes
Strong Downtown Residential	Yes	Yes
Downtown Sports Venues	Yes	Yes
Downtown Arts	Yes	Yes
Downtown Area Schools	Yes	Yes
Strong Pedestrian Orientation	Yes	Yes
Strong Bicycle Orientation	Yes	Some
Population	2.1 M (Metro area) 0.58 M (City)	2.9M (Metro area) 1.2M (City)
Density - inhabitant per hectare	7.4 (Metro area) 50.4 (City)	13 (City)
Riders per capita	75.7	31
Sustainable transportation mode share (transit, walking, cycling)	37% (City) 52% (Downtown)	Carpool 10.8% Transit 6.4% Walk/Bike 1.7%
% of transit network with exclusive right-of-way (subway, LRT, bus lanes, etc.)	26%	100% of heavy rail 84% of light rail 0.5% of bus
Proportion of jobs in CBD	39%	5.76%
Parking spaces per 1000 jobs in CBD	380	767.4
Climate	38°F (January) 64°F (July)	57°F (January) 72°F (July)

Summary of Achievements in Downtown Vancouver

- A highly rated downtown in terms of amenity and livability.
- Growth in population and jobs and a strengthening of the local live/work relationship.
- A majority (60%) and growing use of transit, walking and cycling for trips to and within downtown.
- A reduction in the absolute number of automobile trips.
- Increased development leading to a decline in the number of parking spaces per job.
- Walking is the fastest growing mode for internal circulation.
- The number of cycling trips has doubled.
- Demonstrates that a pedestrian-oriented downtown is achievable in a typical suburban regional setting.

Vancouver's Regional Context

Vancouver is located in the southwest corner of Canada in the province of British Columbia, near the Pacific Ocean. Vancouver is surrounded by water on three sides and is overlooked by the Coast Range - mountains that rise abruptly to more than 1,500 m. Its climate is one of the mildest in Canada. Temperatures average 38°F in January and 65°F in July. Vancouver's average annual precipitation is 49 inches. Most rainfall occurs in winter.

With a population of about 580,000, Vancouver is the largest city in the province of British Columbia and the third largest in Canada. It covers an area of 114 sq km.

The city is the main western terminus of Canada's transcontinental highway and rail routes. The Port of Vancouver is Canada's largest and most diversified port and is one of North America's major gateways for Asia-Pacific trade.

Vancouver international Airport is Canada's second busiest airport and the second largest international passenger gateway on the west coast of North America.



Vancouver is the hub of a regional area of more than 2 million people known as the Greater Vancouver Regional District (GVRD). The District was created in 1967 by the provincial government as a response to the growth and development of Greater Vancouver. The GVRD is still in existence today, operating under the name Metro Vancouver and with a slightly modified mandate. Originally, it was made responsible for region-wide hospital planning, transportation planning, regional parks, water supply, sewage disposal, air pollution and solid waste. Member agencies included Vancouver and five other cities and seven municipalities that made up the region at the time. When it was created, the GVRD, unlike similar second tier government

structures elsewhere in Canada, did not have authority to build, operate and maintain any transportation services or facilities in the region. The primary responsibilities for urban transportation were largely controlled by municipalities (roadways) and the province (public transit and highways).

Prior to the formation of the GVRD by the provincial government, the Lower Mainland Regional Planning Board endorsed the plan “*Choice and Challenge*” which envisaged an extensive freeway grid system of roughly 10 mile spacing throughout the Burrard Peninsula and Fraser Valley to support new towns. The fact that this did not occur was in large part due to the policy choices adopted by the GVRD in the 1970s as part of its “*Livable Region Plan*”. During the late 1960s and early 1970s, as in other major centers in Canada, environmental awareness grew along with gas prices, creating public pressure for more sustainable transportation systems.

Throughout the 1980s and 1990s, the highest population and employment growth occurred in the communities that are now recognized as part of the Growth Concentration Area in the central part of the region. There was, in addition, some densification in urban form in areas outside Vancouver and new regional town centers began to form in several suburban communities.

In 1996, the GVRD Board adopted a growth strategy for Greater Vancouver called the “*Livable Region Strategic Plan*” (*LRSP*) that built on these growth trends. This plan provided the framework for making ongoing regional land use and transportation decisions in partnership with GVRD municipalities, the provincial government and other agencies. It thus has had a major impact on the outcomes, successful or otherwise, of the City of Vancouver’s *Downtown Transportation Plan*.

The principal policy directions of the *LRSP* were to:

- Protect the Green Zone
- Build Complete Communities
- Achieve a compact Metropolitan Area
- Increase Transportation Choice

As part of the *LRSP*, the GVRD also developed a transportation strategy entitled “*Transport 2021*” which was approved in 1993. The strategy was developed to support the direction of the *LRSP* with a range of long-term and medium-term improvements to enhance and manage mobility for all modes.

The key components of the *Transport 2021* strategy were:

Transit	<ul style="list-style-type: none"> • Intermediate Capacity Transit Services • Bus Lanes and Priority Treatments • Additional Transit Services
HOV	<ul style="list-style-type: none"> • HOV Lanes Along Corridors • HOV Lanes Across Bridges
Roadway Network	<ul style="list-style-type: none"> • Improve road connections to Vancouver Airport • New Fraser River Crossing (Connecting Arterials) • New Freeways and connections in outer suburban areas
Travel Demand Management	<ul style="list-style-type: none"> • Telecommuting • Employer Trip Reduction • HOV / Bus Priorities • Road Pricing, Tolling, Gas Tax • Parking Management

Most new roads identified in *Transport 2021* are on the fringe of the Growth Concentration Area and were proposed to service the economic activity to, from and through the region and to address congestion in select areas. By the latter half of the 1990s, however, very few transportation projects identified in *Transport 2021* had been funded, although significant planning and design work was ongoing. The key exception was a new SkyTrain (Automated Intermediate Capacity Rail) line completed by the provincial government and some bus rapid transit type services and other transit improvements implemented by, what was at the time, BC Transit. This situation arose because the regional authority of the GVRD did not include direct power and control of the transportation facilities and programs to be implemented. To remedy this situation, the Greater Vancouver Transportation Authority (GVTA) or TransLink was formed in 1999 to take over BC Transit and to plan, finance and coordinate most regional scale transportation facilities and services, except local and collector roads and provincial freeways.

In 2004, TransLink approved a “Three-Year Plan and 10-Year Outlook” which outlines new and expanded transportation services and facilities for Greater Vancouver and continues the strong support for transit improvements and various transportation demand initiatives including transit priorities, parking strategies and the development of a policy for a congestion pricing/tolling system. Many of these major projects rely on the support and involvement from other agencies and do not include provincial initiatives that are currently underway. Further, the funding of all projects beyond the three year plan requires significant investments that are not yet secured through local, provincial and/or federal sources.

As part of the process, the general public and key interest groups had a strong say in the orientation of the plan and financing; such as the implementation of a region-wide parking tax, additional gas tax and possibly a property tax increase. While many projects identified are consistent with the transportation improvements presented in *Transport 2021*, some new road improvements were identified as regionally important enhancements. Public opinion polls during the planning process strongly supported the need to address roadway congestion as a high priority; as indicated by the affirmation of almost 65% of residents polled in the region. In addition to the public input, extensive work and organized support was also undertaken by the Vancouver Gateway Council, representing interests of industries involved in transporting people, goods and services by air, trucks, rail and marine. Their proposed major road network and transit improvements are identified in a report entitled “*Economic Impact Analysis of the Major Commercial Transportation System*”. Once again, most of these initiatives, but not all, were identified in *Transport 2021*. More than two-thirds by value of these major capital investments, however, are road projects.



During the first part of the current decade, the province also increased its commitment to build road infrastructure through its Border Infrastructure Program to improve the movement of goods to and from the Lower Mainland’s four U.S. border crossings; and through its Gateway Program to address congestion on several major trucking routes.

Funding for these projects is not currently in place and will very likely require tolls as well as private partnerships for them to be implemented in the next 10 years.

Most of the projects included as part of the two Programs were identified in *Transport 2021*. The primary divergence and area of some concern for many residents is the proposed widening of the Trans Canada Highway, which includes twinning the Port Mann Bridge.

The Downtown Vancouver Transportation Plan

Vancouver is frequently ranked as one of the world’s most livable cities. Nature has given it a mild year-round climate and a setting where sea and mountains meet. In addition to the city’s scenic location, it has many beautiful gardens and the world-famous 400 hectare Stanley Park close to the downtown, one of more than 180 city parks, and a combination of natural forest and parklands near the city center.

As Vancouver has grown and prospered, the City has worked to protect this enviable situation. In the early 1990s, the City made “Living First” the priority for the downtown. Among other things, this has meant making more land available for more people to live downtown closer to where they work and encouraging the growth of non-automobile travel for personal trips.

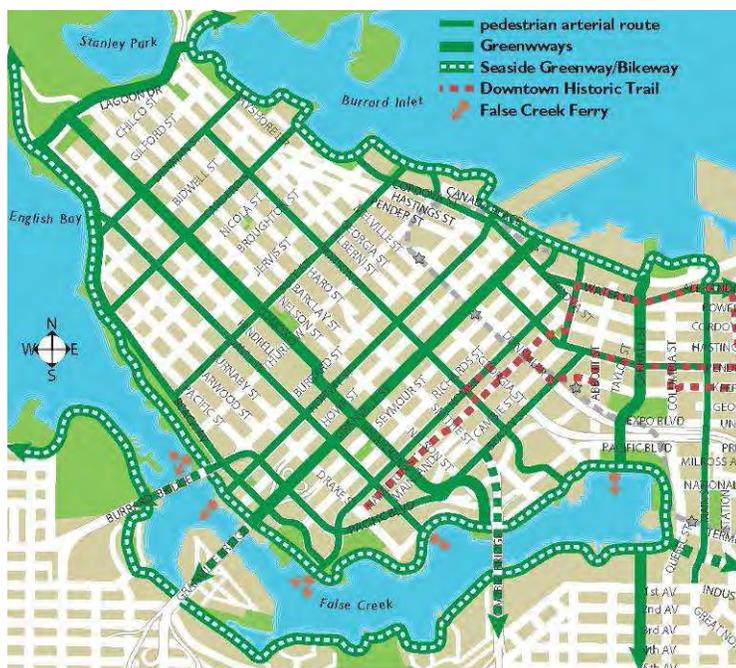
Today, Vancouver’s downtown is one of the fastest growing and the most densely populated city centers in North America. It’s also the only major city on the continent without a freeway system in the city centre, a distinction that figures prominently in its livability.



The *Downtown Transportation Plan (DTP)* was developed in the context of the GVRD’s *Livable Region* plan. Its intent is to ensure that Vancouver’s city centre remains a thriving commercial centre, which is easy to move around in by sustainable transportation.

With only 5 percent of the City’s land area, the downtown now has 13 percent of its population, 39 percent of its jobs and 21 percent of its trip destinations indicating a strong live/work connection. Vancouver’s Central Area has 60 per cent of the region's office space and is home to headquarters of forest products and mining companies as well as branches of national and international banks, accounting and law firms. In recent years, Vancouver has expanded as a centre for software development and biotechnology, while film studios and the streets provide a backdrop for the developing film industry. Vancouver is also a major tourist destination.

The current challenge for downtown is to accommodate more people traveling to, from, and within the City without adding traffic lanes to existing bridges and roads, while also keeping congestion to a minimum. The *DTP*’s solution is not to add



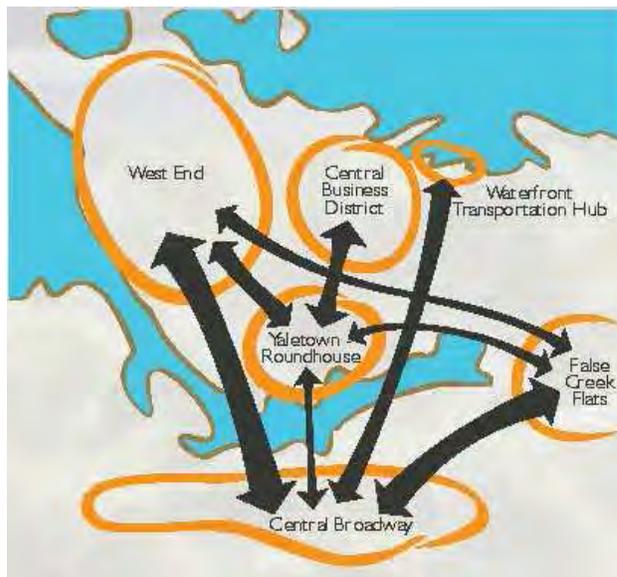
road capacity but to provide more transportation choices to reduce the demand for car trips and thus minimize congestion. The basic guideline is to create sustainable choices, defined as serving current needs without compromising future needs, by balancing and integrating opportunities for walking, cycling, taking transit, and driving.

Walking is a natural choice in the downtown because at 550 hectares it is relatively compact and the climate is mild, and the streets generally safe and clean. The *DTP* Pedestrian plan aims to improve the pedestrian environment in the Downtown through the expansion of pedestrian connector routes and greenways to make walking through and around the City far easier. The greenways will be streets canopied in green and buffered from the sounds and stresses of downtown. The interconnected greenways will permit a person to walk or cycle the length and breadth of downtown, or all the way around it, in relative calm, insulated from the noise and pace of busier streets. Other improvements will include wider sidewalks and awnings and canopies that offer more weather protection. Curb bulbouts at corners will make it easier for drivers to see pedestrians and will reduce the time it takes to cross the street. Redesigned intersections, rear lane crossings and mid-block crossings are also all part of the plan. A way-finding system for walkers will make navigating the city on foot much clearer.

Walking will also be encouraged by protecting and enriching Vancouver's "great streets". The Plan promotes the idea that particular streets bring a distinct character and flavor to the downtown. And collectively, they form a network that lets people experience the essence of Vancouver at their own pace and according to their own preferences. The *DTP* formally identifies the streets that make up this network and proposes, through design and attention to details, to make them a memorable experience for all who use them.

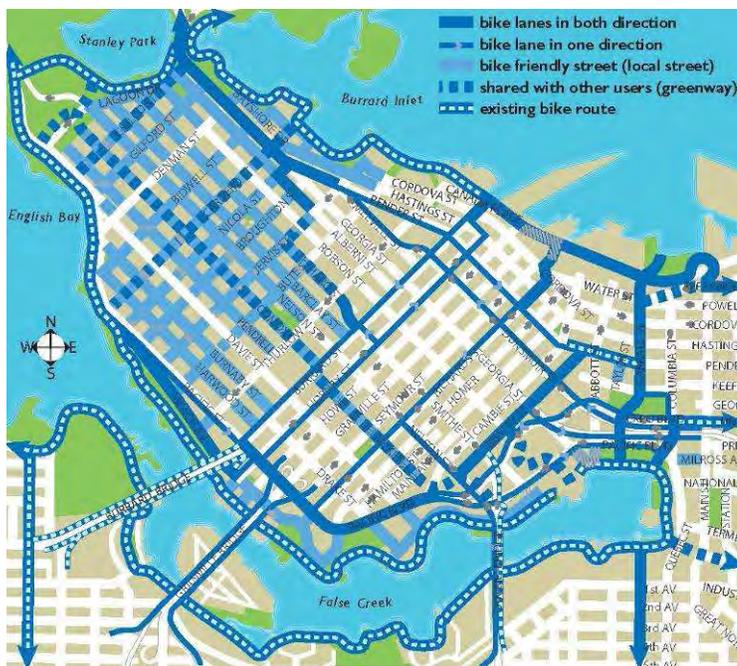
With transit trips to downtown projected to double over the next 20 years, the *DTP* supports the seamless integration of the different ways people take transit to downtown; trolley or diesel bus, SkyTrain, SeaBus (ferry) and West Coast Express (commuter rail). With transit ridership wholly within downtown expected to rise by 85 percent in the morning rush hour (mostly on local bus routes) in the same period, the *DTP* also seeks to ensure downtown transit routes make it easy to get around within the City's core.

While it's now fairly easy to take transit to get to the central business district from elsewhere in the region, it can be difficult to take transit within the metropolitan core, which includes downtown and nearby Central Broadway and False Creek Flats where most of Vancouver's jobs are or will be. The *DTP* proposes better connections between these areas and between the popular and densely populated neighborhoods in the West End, Downtown South and Central Broadway. Some of these connections will be delivered by bus at first and later through a proposed streetcar service and rapid transit expansion. As far as transit connections to other parts of the City and region are concerned rapid rail transit is expected to carry 90 percent of new non-pedestrian and bicycle trips into downtown between 1996 and 2021.



Expanding existing bike lanes and bikeways to create a 25-km cycling network is also a key feature of the *DTP*. Where no bike lanes are proposed, re-building or restriping arterial streets will create widened curb lanes to make more room for cyclists. Other elements that are proposed to make cycling much more attractive, safe and comfortable for riders include racks for bikes on buses and the SkyTrain, storage lockers and easy to read signs specifically for cyclists to make it easy for them to find the safest way to their destination.

The *DTP* is clear that its response to the growth in the number of people, who come to live and work downtown, is to provide new opportunities for walking, cycling, and taking transit and is not to expand the existing road space for cars. This strategy will include managing parking supply, which is one of the few areas in which the City of Vancouver can exercise full control, to encourage commuters to choose transit, bicycling, or walking over driving. The *DTP* recognizes that high costs and low availability will reduce demand for parking while low cost and high availability will increase it. Overall, the *DTP's* on-street parking proposals will produce little or no net change in the total number of parking spaces and the net addition of approximately 570 spaces during rush hours. If developers build the maximum number of spaces the current parking by-law allows, downtown Vancouver will have 54,000 parking spaces by 2021. While this represents an 8 percent increase over 2000, it is actually a tightening of overall supply. The total overall number of commercial spaces per employee would drop from 0.44 in 1990 to 0.32 in 2021. The *DTP* further recommends a review of commercial and residential parking standards, as well as policies that permit the development of free-standing garages in parts of downtown.



Improving the quality of a city's public realm is recognized as a key component of any plan to improve its livability and achieving the desired *DTP* outcomes. The *DTP*, therefore, recommends developing a strategy and work program for undertaking a downtown public realm plan. It will include designing streetscapes that make ceremonial and commercial streets even more appealing, creating more greenways and parks, and making it easier for people to find their way around the city centre. It will also guide the creation of more venues for public events in downtown Vancouver, as well as producing guidelines for improved uses of existing public spaces.

In addition to its various program initiatives, the *DTP* suggested more than 50 individual "spot improvements" that, when taken collectively, could work together to improve access and minimize congestion. They range from improving bike and pedestrian crossings and widening sidewalks, to changing street parking regulations, enhancing transit hubs, and redesigning intersections.

Achievements, Measures and Policies

The Regional Plan

At the regional level the Local Government Act requires regional districts to prepare an annual report on progress in achieving regional growth strategy objectives. The latest annual report available from Metro Vancouver (formerly the GVRD) on the progress of the *Livable Region Strategic Plan* is the 2005 Annual Report, from which the following comments are taken. Building on this progress, Metro Vancouver is now preparing a new Regional Growth Strategy. It will look forward to the next 25 years and consider how best to manage growth and change in the region and will include sustainability principles as its foundation.

The 2005 Annual Report on the *Livable Region Strategic Plan* is organized around the four fundamental strategies and related supporting policies of the Plan:

- Protect the Green Zone
- Build Complete Communities

- Achieve a compact Metropolitan Area
- Increase Transportation Choice

In 1999, the GVRD Board approved a set of monitoring indicators to assist in the charting of progress in achieving the *LRSP* objectives. Each of the indicators is linked to a specific strategy and policy contained in the *LRSP*.

The indicators related to the Green Zone help chart changes in the amount of land, the value of agricultural production, the development of a regional greenway network, and the ecological integrity of the natural areas. For protection of the Green Zone, only a small amount of land was excluded from the Agricultural Land Reserve in 2005 (22 hectares), the system of regional greenways continues to be developed and significant progress was made toward a regional biodiversity strategy.

The indicators related to building complete communities focus on measuring the progress in expanding housing choice (type and affordability), promoting a better balance in jobs and labor force, and building a network of centers. While the pattern of residential development supports the network of regional town centers; the location of offices in these locations continues to be a challenge.

The indicators related to compact region objectives, measure the proportion of the population growth and employment occurring in the Growth Concentration Area, and the peak hour traffic volumes across the boundary with the Fraser Valley Regional District. The total population of Greater Vancouver on July 1, 2005 was 2,155,880, an increase of 23,080 from the previous year, following similar growth patterns of the previous few years. The proportion of population located in the Growth Concentration Area (GCA) reported in the last Census period was 65 per cent. The *LRSP* policy target is 68.4 per cent by 2021. Burnaby/New Westminster, Richmond, and the North Shore added more jobs than resident labor force from 1996 to 2001 (Data on number of jobs in the GCA has not been compiled). The percentage population growth captured in the Growth Concentration Area, therefore, is falling slightly below target.

The indicators that help measure progress in achieving transportation choice include indicators on the supply side and demand side such as kilometers of lanes in the regional road network, tracking vehicle kilometers traveled, median length of commuter trip, changes in the capacity of the transit system, and transit ridership. The number of lane kilometers in the major road network increased to 2,251 in 2005, an increase of 50 lane kilometers since 2003. The number of vehicles per household has remained fairly constant over the last several years at around 1.7 vehicles per household. The median commuter trip length declined slightly from 7.7 kilometers to 7.6 kilometers (1996-2001 census data). Transit service capacity provided by GVTA increased in 2005 by over 198,000 service hours. Transit ridership showed a third straight year of substantial increases. In 2005, transit ridership increased by 2.6 per cent, an increase of over 4 million passenger trips. On increasing transportation choice, therefore, there has been a significant increase in transit ridership and advancement on rapid transit projects for the Richmond/Vancouver corridor.

The Downtown Transportation Plan

The 1997 Transportation Plan set transportation mode share targets for the year 2021, outlined 70 major initiatives, and established the Transportation Policy for the City. In the years following adoption, six initiatives were added to the Plan. Work has begun on all 76 major initiatives: 50 are complete and most of the 26 that are currently underway will be completed within one to three years.

Overall, the City's transportation policies appear to have been successful in achieving the desired results. Population and employment in Vancouver has grown steadily over the last ten years, resulting in a 23% increase in trips to Vancouver. However, vehicles entering and leaving the City have actually decreased by 10% over the same period. New trips to and within Vancouver have been increasingly accommodated on transit, bike, and walk modes.

Vancouver's Downtown has experienced growth in residents and in jobs, creating an efficient, high-density, mixed-use centre. Trips to Downtown have increased 22% in ten years, yet vehicles entering and leaving the Downtown Central Business District have decreased by 7%. New trips to Downtown have been by transit, cycling and walking. In particular, walking has become the fastest growing and most important way of getting around the

Downtown. In the morning peak period there are some 2,700 bike trips into the Downtown alone and on an average day there are over 50,000 bike trips to Vancouver destinations.

Regional data on transportation mode shares, collected by TransLink's Trip Diary Survey and Vancouver Transportation Plan (for driving, car pooling, transit, walking and cycling) in 2004, show that the City of Vancouver has significantly different travel characteristics than the rest of the region.

Mode	Downtown		Vancouver		Rest of GVRD	All GVRD
	2004	2021 Target	2004	2021 Target	2004	2004
Driver	30%	36%	50%	44%	67%	62%
Passenger	9%	12%	12%	15%	17%	15%
Transit	30%	34%	17%	23%	6%	10%
Bike	3%	18%	3%	18%	1%	2%
Walk	27%		17%		9%	11%

About half of trips over a 24-hour period in Vancouver are by driving, compared to about two thirds for the rest of the region. Vancouver also exhibits correspondingly higher transit mode shares (17% versus 6% for the rest of the region) and walking mode shares (17% versus 9% for the rest of the region). The differences are attributed to Vancouver's higher density and mixed-use neighborhoods, and to investments in transportation infrastructure that supports walking, cycling and transit. Within the Downtown, the contrast is even stronger, with the use of sustainable transportation modes accounting for 60% of all trips.

Case Study Findings

Without providing a subjective view on the "cause and effects" on the evolution of transportation and land use in the Region – which is an endless debate – the following observations are provided.

- Population growth in general and expansion of the road system in particular have contributed toward the suburbanization of the Region and a very strong reliance on cars outside the City of Vancouver.
- The economic activity of the Region is heavily reliant on access to Ports, gateways and key nodes of Greater Vancouver, which require good road and rail access.
- The historical emphasis for investment in public transit in the Growth Concentration Area remains strong, but with the appearance of conflicting interests in expanding roadways in the suburban areas outside this area.
- Despite being located within a fairly typical North American suburban regional environment, the City of Vancouver has managed to create what is considered one of the most attractive downtown environments on the continent.
- Factors favoring this outcome include:
 - A geographically well defined downtown area
 - An attractive natural environment and climate with an adjacent major park
 - A well established downtown population and employment base.
 - Significant public support for sustainable policies including no downtown freeways and no road expansion.
 - A strong provincial role to create supportive regional organizations that permitted the City to adopt non-suburban planning approaches for the whole city in contrast to the rest of the region.
 - A wide range of City based policies, not just in transportation, that are designed to influence the desired outcomes for the Downtown.

Appendix B

Background Documentation Review

Appendix B – Background Documentation Review

1. Background Documentation	B-1
2. Brainstorming Workshop	B-1
3. Transportation and Transit Data	B-1
Appendix B1 – Compiled Background Documentation	B-3
Appendix B2 – Workshop Presentations	B-7
Appendix B3 – Travel Demand and Transit Information	B-37



1. BACKGROUND DOCUMENTATION

As part of the San Diego Downtown Alternative Transit Plan Study, a review of existing background information was undertaken. At the onset of the study, information was provided from various sources including SANDAG and CCDC. Previous studies and information related to the downtown development and transportation were assembled and organized as follows:

- Census Information (including demographics and population growth)
- Maps of downtown and surrounding areas (includes GIS mapping files)
- Reports and Studies
 - Downtown Community Plan
 - Regional Comprehensive Plans
 - Planned District Ordinances
 - Environmental Impact Reports
 - Transportation Plans
 - Bicycle and Pedestrian Studies
 - Transit Studies
 - Bus
 - LRT
 - Intercity
 - High Speed
 - Parking Studies
 - Streetscaping Studies

Appendix B1 includes a full list of compiled documents.

2. BRAINSTORMING WORKSHOP

The McCormick Rankin team assembled in San Diego for a brainstorming workshop for the CCDC Downtown Transit Alternative Plan, conducted Tuesday 22 and Wednesday 23 January 2008. Tuesday morning saw the team reviewing the existing conditions for transit in San Diego, from both a transit market and service perspective. A presentation was given by Russ Chisholm and Joe Forgiarini from Transportation Management and Design. The presentation discussed the background information relevant to downtown San Diego such as population and employment growth, commuter travel patterns, and transit services. Some information regarding pedestrians, parking, and cycling was also presented. Another presentation from MTS, (Metropolitan Transit System) was given that explained the transit vision and the area transit services. The presentations are included in Appendix B2.

3. TRANSPORTATION AND TRANSIT DATA

Existing and future travel and transit demand data was collected in order to understand typical travel patterns.

The following information was provided by SANDAG to be used as part of the downtown transit analysis.

- Transit Data
 - Maps of bus routes and stops for each forecast year.
 - List of transit stops and local districts
 - Boarding and alighting at each bus stop for each bus route for each forecast year (2010, 2015, 2020, 2030)

- Transportation Data
 - Total Person trips and total vehicle trips O-D matrices at a district level daily for 2003, 2010, 2015, 2020, 2030
 - Trip generation reports for zones within the Centre City community planning area (2003, 2010, 2015, 2020, 2030)
 - Person trips by trip purpose for the 2030 planning horizon
 1. HW = Home to Work
 2. HC = Home to College
 3. HE = Home to Education
 4. HS = Home to Shop
 5. HO = Home to Other
 6. WO = Work to Other
 7. OO = Other to Other
 8. SP = Serve Passenger
 9. VI = Visitor
 10. AP = Airport
 - Mode split reports (2003, 2010, 2015, 2020, 2030)
 - Daily vehicle trips and transit person trips at 20 screenline around the (2003, 2010, 2015, 2020, 2030)

Appendix B3 includes graphical and tabular summaries of the collected data.

Appendix B1 – Compiled Background Documentation

Census Data

- Existing Population and Housing Estimates
- Low and Moderate Income Households
- Race and Ethnicity
- Fact Sheet 2000
- Fact Sheet 2004
- Demographic
 - Population Current Estimates
 - Population Forecasts
 - Population and employment per district 2004, 2030

District	Population			Employment		
	2004	2030	growth	2004	2030	growth
County Administration	0	318	318	2,671	3,857	1,186
Little Italy / Midtown	8,623	19,440	10,817	10,734	12,573	1,839
San Diego Harbor	0	0	0	2,912	14,159	11,247
Columbia	3,340	7,177	3,837	15,862	19,208	3,346
Business Core	2,525	10,464	7,939	14,188	18,062	3,874
Cortez Hill	1,545	3,407	1,862	520	721	201
City College	0	0	0	1,243	1,247	4
Horton Plaza	810	783	-27	3,294	3,806	512
Marina	4,807	5,916	1,109	2,577	4,119	1,542
Gaslamp Quarter	730	1,572	842	4,591	6,251	1,660
Village Park	1,449	8,117	6,668	1,283	1,543	260
East Village (north)	1,149	7,947	6,798	2,776	3,069	293
Seaport Village	0	0	0	3,870	5,155	1,285
Convention Center	0	0	0	0	200	200
Ballpark District	1,610	7,568	5,958	2,055	3,866	1,811
East Village (south)	2,561	10,168	7,607	1,664	2,433	769
Downtown Total	29,149	82,877	53,728	70,240	100,269	30,029
North County West	396,220	489,924	93,704	167,045	230,365	63,320
North County East	409,348	594,669	185,321	149,914	221,422	71,508
East County	20,205	57,838	37,633	5,055	16,443	11,388
North San Diego	97,145	127,825	30,680	44,145	54,071	9,926
Poway	88,804	98,074	9,270	42,563	60,292	17,729
Ramona	34,907	55,589	20,682	6,394	13,368	6,974
Del Mar-Mira Mesa	150,431	195,017	44,586	110,278	144,213	33,935
University	55,526	61,305	5,779	84,421	100,587	16,166
Miramar	7,403	14,481	7,078	12,628	12,806	178
Coastal	77,696	92,864	15,168	48,856	53,698	4,842
Kearny Mesa	140,870	166,551	25,681	142,341	163,302	20,961
Elliott - Navajo	89,788	100,418	10,630	27,830	34,882	7,052
Santee	52,611	68,033	15,422	16,480	23,547	7,067
Lakeside	55,859	76,790	20,931	14,057	18,850	4,793
Kearny Mesa	9,452	15,791	6,339	45,990	54,943	8,953
Peninsula	61,891	73,173	11,282	58,062	70,519	12,457
Central San Diego	133,280	176,976	43,696	78,662	86,414	7,752
Mid-City	170,610	220,777	50,167	38,334	43,118	4,784
La Mesa	58,033	66,782	8,749	31,954	34,762	2,808
El Cajon	122,695	141,270	18,575	50,574	57,474	6,900
Harbison Crest	14,800	20,224	5,424	2,415	4,442	2,027
Alpine	14,925	25,288	10,363	7,418	9,302	1,884
Coronado	26,591	31,038	4,447	33,708	34,043	335
National City	55,914	73,891	17,977	26,161	28,910	2,749
Southeastern San Diego	159,892	180,060	20,168	17,085	20,638	3,553
Lemon Grove	30,438	36,109	5,671	6,685	7,873	1,188
Spring Valley	81,002	89,247	8,245	13,802	16,400	2,598
Chula Vista	111,982	150,249	38,267	37,173	50,096	12,923
Sweetwater	104,548	174,774	70,226	21,310	62,406	41,096
Jamul	14,314	33,419	19,105	3,839	5,677	1,838
South Bay (West)	117,335	139,523	22,188	16,877	20,796	3,919
South Bay (East)	19,350	53,907	34,557	17,053	57,754	40,701
San Diego Total	3,013,014	3,984,753	971,739	1,449,349	1,913,682	464,333

Maps

- 2005 Housing Map
- Downtown Jurisdictional Boundaries
- Floor Area Ratio Maps
- Land Use Map
- Land Use Overlay
- Neighborhood Map
- Parking Lot Garages
- Parking Map
- Population and Employment
- Major Employers
- Major Roads
- Seismic Map
- Street Overlay District
- Zoning Information Package
- Smart Growth Maps: midcity, north, northcity, south
- 2004 Aerial Image
- GIS Mapping
 - Bike
 - City
 - City Planning Areas
 - Coast
 - Colleges and Universities
 - Community Planning Areas
 - Census 2000
 - Designated places 2000
 - Developable lands
 - Freeways
 - Government
 - Hospitals
 - Lagoons
 - Lakes
 - Major Statistical Areas 2000
 - Ownership
 - Railroads
 - Redevelopment Areas
 - Runways
 - Schools
 - Subregion Areas 2000
 - Topographic
 - Tourist Attractions
 - Transit Routes
 - Transit Stops
 - Urban Area 2000
 - Zipcode

Reports and Studies

- Downtown Community Plan
 - Chapters 1 to 15
 - San Diego Municipal Code 2007 Amendment: Attachment C Chapter 15: Planned Districts
- Regional Comprehensive Plan
 - Regional Comprehensive Plan – July 2004
 - Environmental Impact Report (EIR) – June 2004
 - Environmental Impact Report (EIR) Appendices
 - Establishing a Baseline for Monitoring Performance – Nov 2006
 - Integrated Regional Infrastructure Strategy (IRIS) Technical Appendices
- Planned District Ordinances
 - City Centre PDO
 - Complete report
 - Maps / Graphics
 - Reorganization Table
 - Text Tables
 - Redevelopment Plan
 - Implementation Plan 2004 - 2009

- Gaslamp District PDO
 - Marina District PDO
- 2030 Mobility Environmental Impact Report
 - Final Report – March 2003
 - Addendum – January 2005
 - Amendments – July 2007
- Transportation Plan
 - 2030 Regional Transportation Plan (RTP)
 - 2030 Regional Transportation Plan Technical Appendices
 - 2030 Revenue Constrained RTP
 - 2030 Revenue Constrained RTP – supplemental EIR
 - Fact Sheet - RTP
 - Fact Sheet - Joint Transportation Operations Centre
 - Fact Sheet – Command and Control Infrastructure Systems
 - Investing in Our Transportation Future
 - ITS System Architecture
 - Smart Growth Guidelines
 - List of Federally Obligated Projects
 - SAFETEA_LU High Priority Projects
 - Regional Transportation Improvement Program 2006
 - Regional Transportation Improvement Program 2004
 - Fact Sheet - Regional Transportation Improvement Program (RTIP)
- Bicycle and Pedestrian Studies
 - Bayshore Bike Plan
 - Bayshore Bike Map
 - Bayshore South Bay Project Map
 - Planning and Designing for Pedestrians
- C Street
- Port of San Diego
 - Lane Field
 - N Embarcadero Vision Plan
 - Navy Broadway Complex_Broadway & Pacific
 - Old Police HQ
 - Other Reports
- Transit
 - The state of Commute 2005
 - Commute Characteristics
 - Independent Transit Planning Review Services – Dec 06
 - Travel Time Analysis of Major Transportation Corridors
 - Changing the face of transit riders
 - Fact Sheet – Regional Transit Vision
 - Regional Transit Vision
 - Mid City Transit Network Plan Report
 - Fact Sheet - Transit First Priority Measures
 - Airport Regional Transit Plan
 - Welfare to Work Transit Study 2003
 - On Board Transit Survey 2004
 - Fact Sheet – Americans with Disabilities Vehicle Acquisition
 - Fact Sheet – estops – transit stop information centre
 - Fact Sheet – TransNet
 - Fact Sheet – TransNet Dashboard
 - TransNet 2007 Update
 - Fact Sheet – Assistance to Transit Operations and Planning
 - Assistance to Transit Operations and Planning (ATOP) 2006
 - Triennial Performance Audit of MTA

- Performance Audit of North County Transit District
- Regional Short Range Transit Plan
 - 2005 – 2009 Transit Plan
 - 2005 – 2009 Transit Plan Technical Appendices
- Bus
 - Fact Sheet – Regional Bus Replacement Vehicles
 - Fact Sheet – El Cajon BRT
 - Fact Sheet – I15 Managed Lanes
 - Fact Sheet – South Bay BRT
 - Escondido Rapid Bus
 - Mid City BRT Overview
 - South Bay BRT
- LRT
 - Fact Sheet – Blue Line Shelter Rehab
 - Fact Sheet – Mid Coast Corridor
 - Fact Sheet – Green Line Trolley
 - Fact Sheet – Regional LRT Grade Separations
 - Green Line Trolley Survey
 - Mid Coast LRT Map
- Intercity
 - Fact Sheet – Intercity Rail and Feeder Bus service
 - Fact Sheet – Intercity Passenger Rail Rolling Stock
 - Fact Sheet – Lossan Corridor Business plan
 - Fact Sheet – Lossan Corridor Agency
 - Fact Sheet – Lossan rail intermodal improvement program
 - Lossan corridor Business Plan
 - Lossan Corridor Strategic Plan
- High Speed
 - Del Mar Tunnel Option
 - Del Mar Tunnel Option 2
 - Encinitas Tunnel Option
 - High speed alignments/stations/ screening alternatives – Orange County
 - High speed alignments/stations/ screening alternatives – Inland Empire
 - High speed rail in San Diego County Map
 - Preferred Alignment and stations – south
 - 2006 Maglev Study Phase 1
 - 2006 Maglev Study Phase 1 Technical Appendices
- Parking Study
 - 1997 Comprehensive Parking Plan
 - Additional Parking – downtown parking map
 - Issue 43 – 2003 Fact Sheet
 - Park 101 – Parking Basics in Downtown San Diego
 - Parking Area Cortez
 - Parking Area East Village
 - Parking Area Little Italy
 - Parking Area Marina
- Streetscape
 - City Centre Arts Plan
 - City Centre Streetscape Manual

Appendix B2: Workshop Presentations

TMD - Background: Downtown and County of San Diego.....	B-8
MTS - Comprehensive Operational Analysis: Service Development Plan.....	B-29



Background: Downtown and County of San Diego

January 2008



Overview

Introduction

1. San Diego Area Travel
2. San Diego Transit Service
3. COA Regional Service Concept
4. Regional Transportation Plan (SANDAG)



Introduction

Background provided through review of market, service, and regional service plans for San Diego County.

Metropolitan Transit System (MTS) is transit provider for central, eastern and southern San Diego County.

North County Transit District (NCTD) is transit provider for northern San Diego County.

Each agency oversees the short-range planning and transit operations for their area.

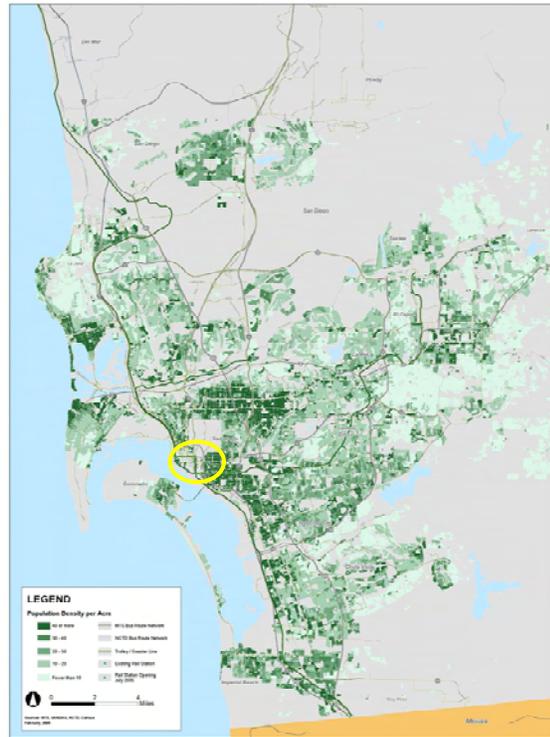
San Diego Association of Governments (SANDAG) administers overall transit and regional planning for its the 18 member cities and the County of San Diego.

Regional Transportation Plan (Mobility 2030) is prepared by SANDAG with input from the transit providers.



Population

- 2.9 million people live in San Diego County, 1.1 million within City of San Diego.
- Highest-density populations found in San Diego close to downtown (Mid-City, Pacific Beach, Ocean Beach, Golden Hill, Southeast).
- Remaining service area characterized by lower density urban/suburban communities.
- Countywide projections:
 - Population to increase by 1 million to 3.9M by 2030.
 - Average age up 33 to 39 years with 19 percent of the population over 65.
 - Non-Hispanic whites will no longer be the majority ethnic group (40%, down from 55%), Hispanics up 27 to 37%.
- Downtown San Diego population expected to grow from over 30,000 in 2005 to over 80,000 in 2030.

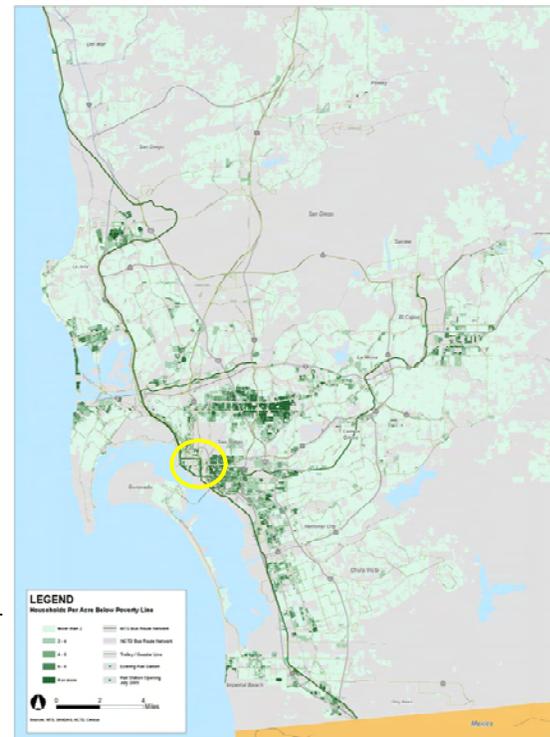


Population Density



Households and Incomes

- 314,000 additional households expected by 2030.
- Multi-family dwellings expected to grow from 35 to 50% by 2030, with SF declining.
- Supply of developable land dwindling in San Diego County. Housing expected to be replaced in older areas closer to downtown San Diego and older town areas.
- Median annual incomes (1999 \$) expected to increase from \$47,000 to \$72,000.
- Less than 13 percent of all households in the San Diego area in poverty, concentrated east and southeast of downtown San Diego, the I-5 corridor south to San Ysidro, and City of El Cajon.
- Pacific Beach, Ocean Beach, and University City also showed poverty concentrations; this is largely university-aged students.

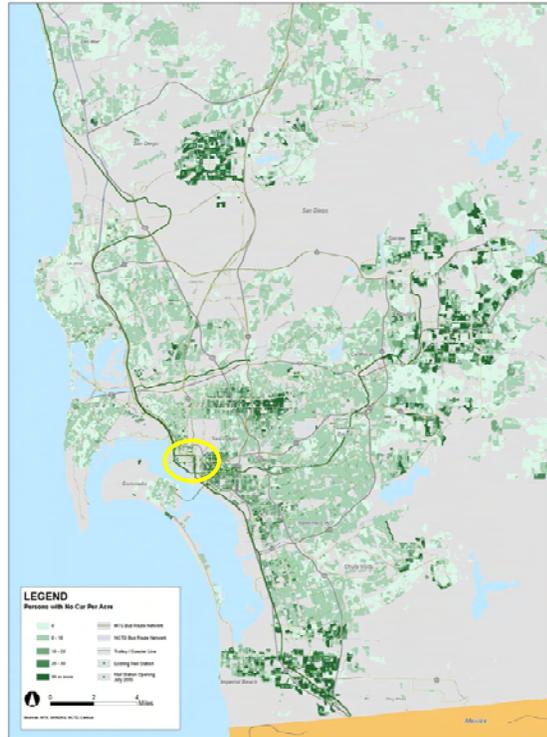


Poverty Density



Vehicle Availability

- Distribution of persons living in vehicle deficient households closely aligns with those in poverty, with the exception that the Pacific Beach, Ocean Beach, and University City areas (students, youth).
- *Persons with No Vehicle Available* measures the vehicle availability per household through the ratio of vehicles per household to driving age individuals in the household on a per acre basis.



Centre City Development Corporation

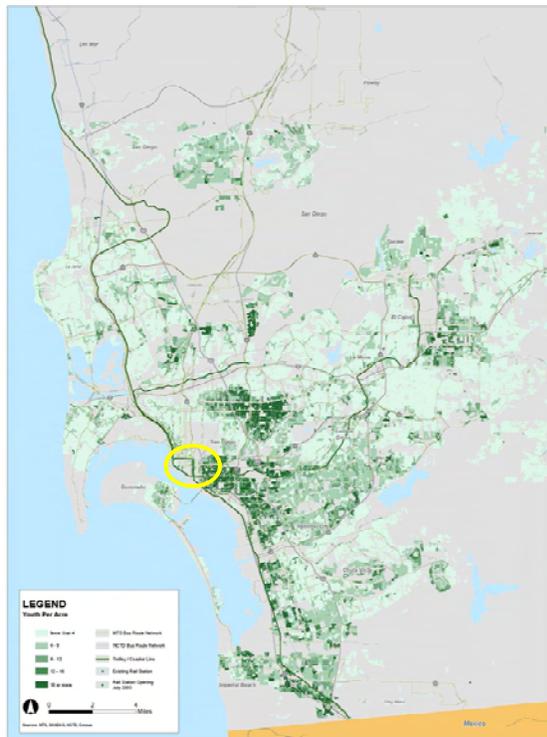


Density of Persons with No Vehicle Available



Youth

- The number of youth (over 450,000) in the San Diego area is 23 percent of entire population.
- The highest concentrations of youth (up to 18 years old) found in the areas east (Mid-City) and southeast of downtown San Diego, as well as Tierrasanta, El Cajon, and the south I-5 corridor communities to San Ysidro.



Centre City Development Corporation

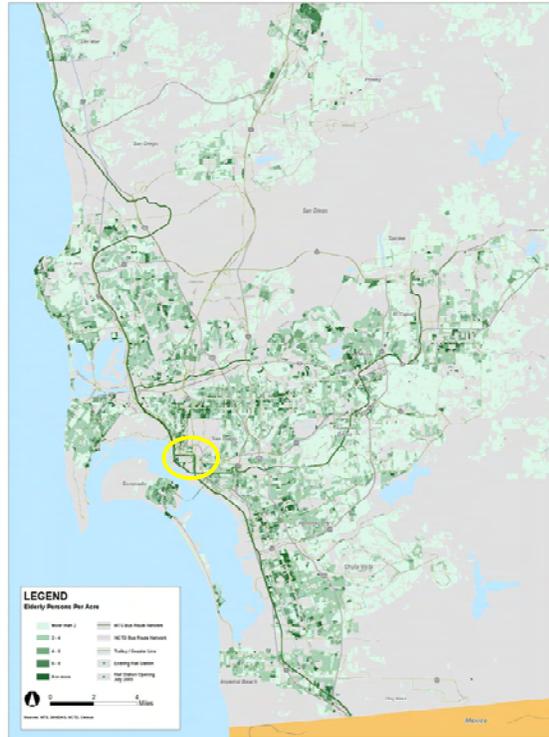


Youth Density



Seniors

- There are 218,500 seniors in the San Diego area, just 8 percent of the population. This percentage is expected to grow significantly through 2030.
- The distribution of elderly persons is much more scattered than that of youth.
- Only major identifiable concentration is in the far north county community of Rancho Bernardo.
- Many of the pockets are senior residential facilities, which generally provide some level of dedicated transportation for their residents or have alternative transport available under SANDAG's CTSA program.

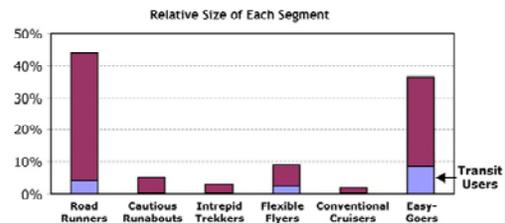
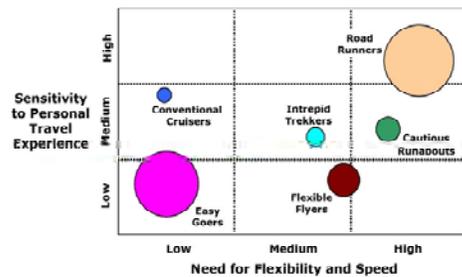


Density of Elderly Persons



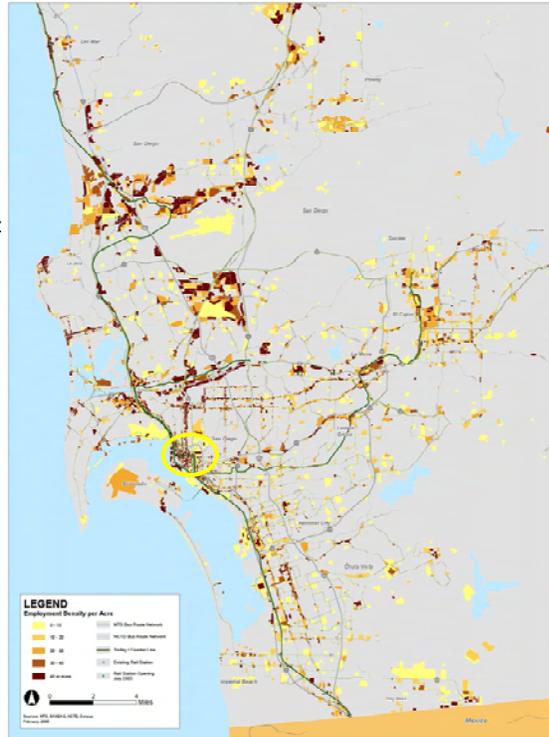
Market Segmentation (Consumer Research)

- Cambridge Systematics undertook a market segmentation analysis to better understand SD travel attribute sensitivity.
- Analysis identified six key preference areas: 1) need for flexibility and speed, 2) sensitivity to personal travel experience, 3) sensitivity to personal safety, 4) concern for natural environment, 5) sensitivity to transportation cost, and 6) sensitivity to crowds.
- People grouped into six categories of traveler: Easy Goers, Conventional Cruisers, Flexible Flyers, Intrepid Trekkers, Cautious Runabouts, and Road Runners.
- The top exhibit to the right summarizes the groups by their need for flexibility and speed and sensitivity to personal travel experience. The size of the circles represents the size of the groups relative to one another.
- About 80 percent of consumers fall into either the largest "Road Runner" or "Easy-Goer" categories, making these the key target consumer groups.



Employment

- Downtown San Diego, with over 75,000 jobs, is dominant employment area within the region, yet accounts for less than 6 percent of County's jobs.
- Other high density employment areas are:
 - University City/Sorrento Mesa
 - Kearny Mesa
 - Miramar
 - Mission Valley
 - Rancho Bernardo-Poway
- By 2030, employment in San Diego County expected to increase by 440,000 from 1.4 to over 1.8 million.
- Downtown employment is expected to increase to 125,000 by 2030, but will still not dominate County employment.

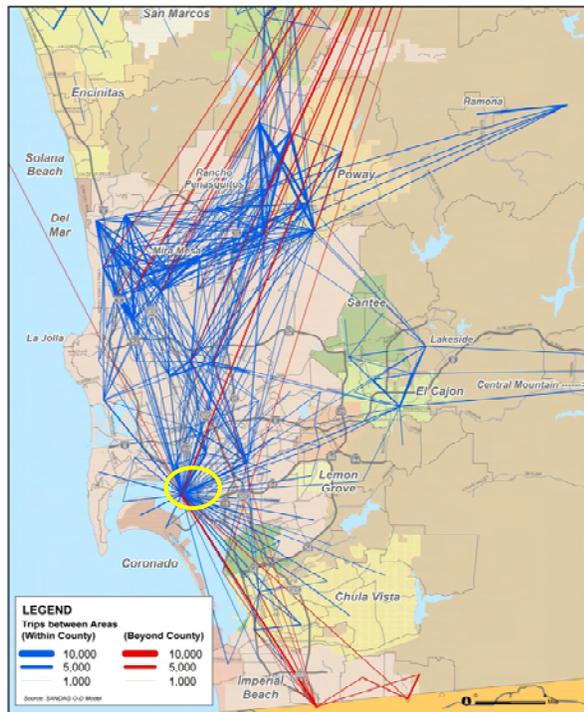


Employment Density

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2010 Commute Trips

- Downtown San Diego is only one of several key employment destinations, with most travel occurring from within 12-15 miles of this key location.
- Commuter travel growth from farther out is expected to be concentrated in Mexico and Riverside County.
 - Commuter travel from across the border at both San Ysidro (Tijuana) and Otay Mesa to downtown is expected to grow.
 - Riverside County commuting is expected to grow to San Diego County, including downtown.

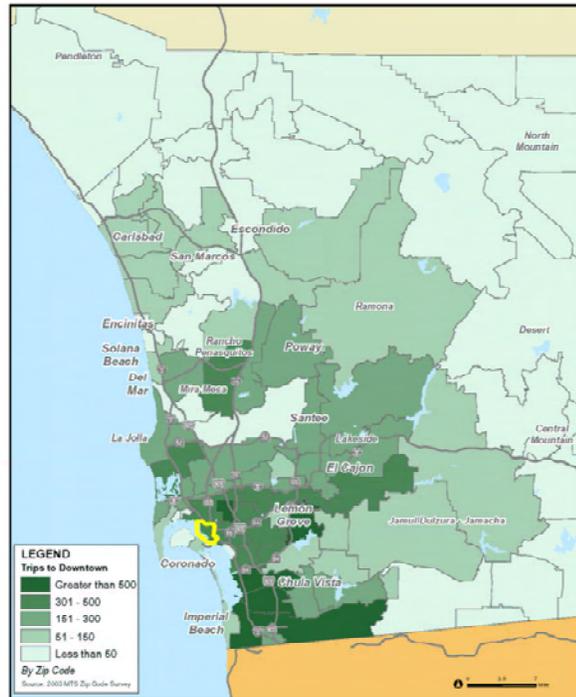


Commute Travel Patterns
External Work Trips Between Areas

Centre City Development Corporation

Downtown San Diego

- The major commute patterns into downtown San Diego (Centre City) mostly fall within a 12-15 mile ring.
- Largest concentrations of downtown commuter trip origins are in the South Bay, East County, San Diego beaches and Mira Mesa to the north.



Commute Travel Patterns
Commuters to Downtown (15,837 respondents)



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Internal Work Travel

- Downtown San Diego is the key area with concentrated short distance internal work travel.
- Other areas with significant internal travel, such as Poway and El Cajon, represent much larger areas.



Commute Travel Patterns
Internal Work Trips



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Colleges / Universities

- The major universities in San Diego are:
 - San Diego State University (SDSU – 31,600 students) located to the east of Mid Cities.
 - University of California San Diego (UCSD – 25,300 students) located in University City.
- San Diego City College (13,700 students) is located at the north-east corner of downtown, at Broadway and Park.

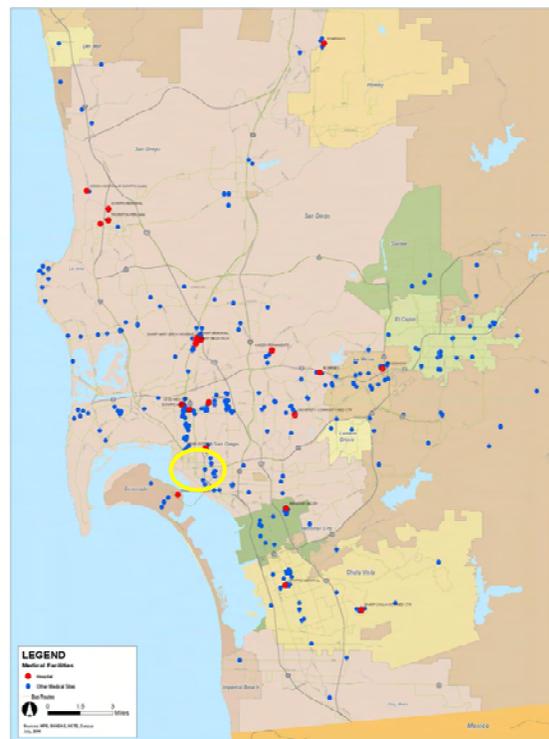


Colleges



Hospitals / Medical Facilities

- Three key concentrations of hospitals:
 - Hillcrest/Mid-City has three major hospitals (UCSD, Scripps, and Kindred).
 - University City has Scripps, Thornton, and the V.A.
 - A group of Sharp Hospitals including Children's is located in Kearny Mesa.
 - The Naval Hospital is located just east of Balboa Park and downtown San Diego.
- The major public hospital is the UCSD Hospital in Hillcrest, just north of downtown.



Medical Facilities



Regional Shopping Malls

- Major regional shopping malls are shown on the map and are all served by MTS transit hubs:
 - Horton Plaza (downtown)
 - University Towne Centre
 - Mission Valley Center
 - Fashion Valley
 - Grossmont Center
 - Parkway Plaza
 - College Grove
 - Plaza Bonita
- Downtown's Horton Plaza is well served by MTS bus on Broadway and is just one block from the Trolley (C Street).



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Tourism and Leisure

- Key tourist and leisure locations:
 - Balboa Park and San Diego Zoo
 - San Diego beaches and bays (Ocean Beach, Pacific Beach, La Jolla and Mission Bay)
 - Downtown Gaslamp and Little Italy Districts
 - Major event venues (Petco Park and Convention Center in Downtown, Qualcomm Stadium in Mission Valley)
 - Old Town
 - Sea World
 - Coronado
 - Tijuana and Baja California (Mexico)
- Visitors arriving other than by car come by air to Lindbergh Field Airport near downtown, or by rail to Santa Fe Depot at the western end of downtown (serving Amtrak).
- Largest concentrations of hotels are within downtown San Diego or in nearby Mission Valley.

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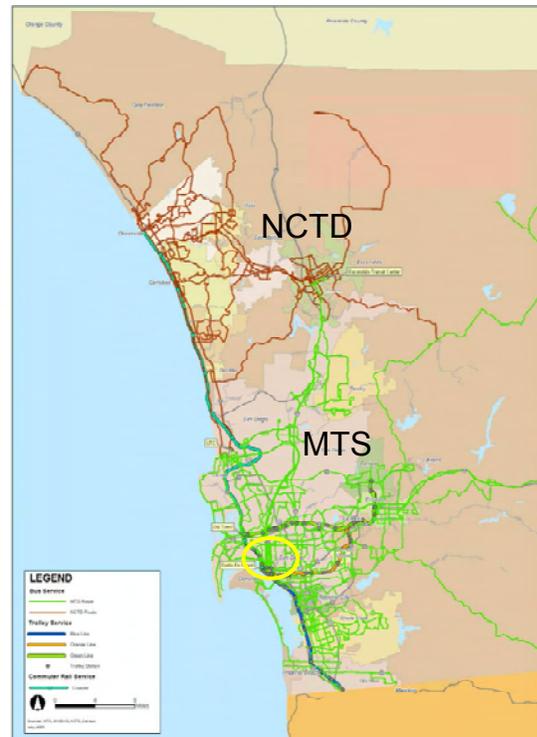


San Diego County Service

MTS co-ordinates four transit providers: MTS Bus, MTS Contract Services (Bus), MTS Trolley (San Diego Trolley) and the City of Chula Vista services. **NCTD** provides bus services directly and contracts operation of rail (Coaster and Sprinter) services.

MTS network (green) links downtown San Diego with the cities of San Diego, Coronado, south to National City, Chula Vista, and Imperial Beach, east to Lemon Grove, La Mesa, El Cajon, Santee, and Poway, as well as unincorporated areas of North and East County.

NCTD network (red) focuses on the northern most cities of Oceanside, Vista, San Marcos, Escondido, Carlsbad, Encinitas and Solana Beach. Only the Coaster commuter rail serves downtown San Diego.

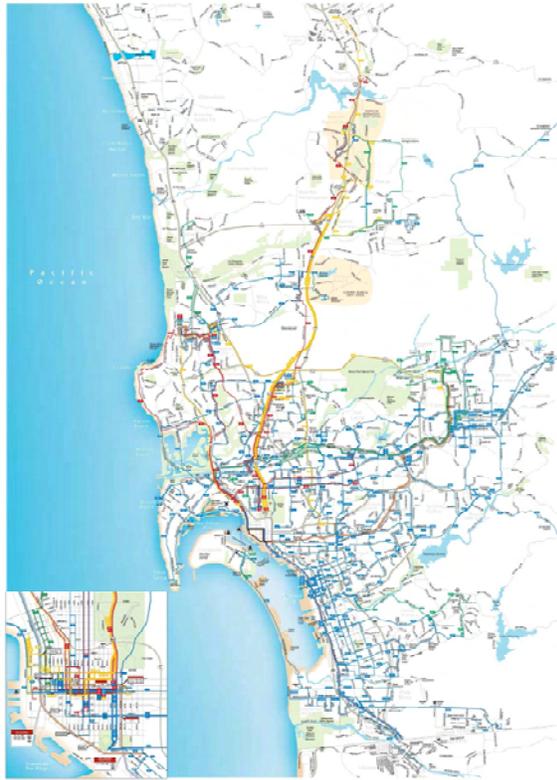


MTS San Diego County Transit Service

Centre City Development Corporation

San Diego MTS System

- MTS operates bus, LRT, and paratransit services.
 - Urban Bus
 - Suburban Bus
 - Neighborhood Bus
 - Corridor Express/Limited
 - Regional Corridor Express
 - Rural Access Services
- Average weekday ridership was over 280,000 with approximately 170,000 on bus and 110,000 on rail.



San Diego MTS – Downtown

- MTS operates 22 bus and 2 Trolley (Blue/Orange) services in Centre City.
- NCTD operates Coaster commuter rail service.
- Amtrak operates Surfliner service between San Diego and Santa Barbara via Los Angeles.



Centre City Transit Service

Centre City San Diego Service Levels

Corridor	Daily	AM Peak	PM Peak
Northwest/West	11,893	2,833	3,131
North	2,847	500	677
Northeast	4,767	1,360	886
East	8,053	3,621	1,131
South	12,434	5,789	1,709
TOTAL	39,994	14,103	7,534

Transit Ridership To and From Centre City

Corridor	Daily	% of Total	AM	% of Total	PM	% of Total
Northwest/West	24,687	28.1%	6,062	29.8%	6,020	24.4%
North	5,631	6.4%	1,119	5.5%	1,240	5.0%
Northeast	11,142	12.7%	2,506	12.3%	2,671	10.8%
East	18,621	21.2%	2,626	12.9%	7,212	29.2%
South	27,862	31.7%	8,040	39.5%	7,516	30.5%
Total:	87,943		20,353		24,659	



MTS Urban Rail

- San Diego Trolley, is a light rail system operating a fleet of 134 distinctively red cars over three lines carrying 107,000 weekday passengers. The Blue and Orange Lines serve Centre City San Diego directly.

 - **Blue Line** (opened in 1981) originates at San Ysidro at the Mexican border and serves the cities of Chula Vista, National City, and C Street through downtown San Diego to Old Town where it meets the Green Line serving Mission Valley/SDSU/El Cajon.

Current SANDAG plans are for a Mid-Coast extension of the Trolley north from Old Town along I-5 to the University City/UCSD area.

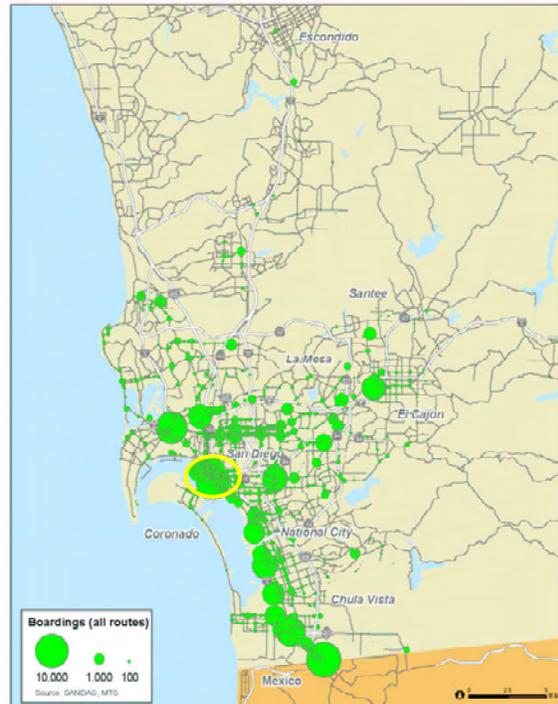
 - **Orange Line**, serving the eastern areas dates to 1986, starts at the 12th/Imperial Station near Petco Park and loops through downtown San Diego via the Bayside alignment (Convention Center/Harbor Drive) to Santa Fe Depot, then via C-Street back to 12th/Imperial then continues east through neighborhoods in eastern San Diego and Lemon Grove, La Mesa, and El Cajon.
 - **Green Line** (opened in 2005) operates in Mission Valley between Old Town and Santee with major transfer centers at Fashion Valley and SDSU. This line does not serve downtown San Diego directly, but requires transfers with the Blue Line at Old Town.

There are plans to address the LRV/platform issues that prevent the newer low-floor Green Line cars from operating into downtown.
- San Diego Vintage Trolley is a non-profit organization dedicated to the restoration and operation of historic streetcars in San Diego. Three PCC cars are currently under restoration and are planned to be operated on the Centre City Loop starting in August 2008.



MTS Passenger Boardings

- Largest ridership occurs along the Trolley system.
 - Downtown San Diego generates the highest system boardings, followed by the South Bay Trolley stations.
 - The highest ridership stop is the San Ysidro Border Crossing stop, which has over 10,000 daily boardings.
- Beyond the Trolley lines and major transfer centers, such as Fashion Valley and University Towne Centre (UTC), boardings are most concentrated in Mid-City, Southeast San Diego, and the area just east of I-5 in South Bay.

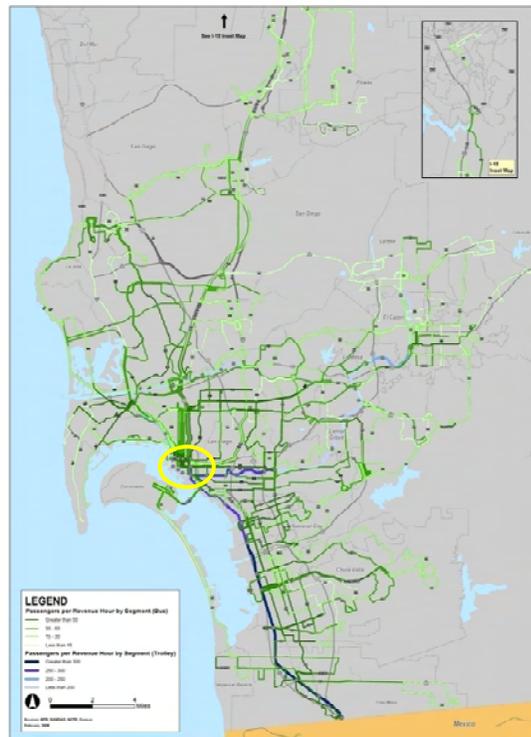


System-wide Boardings
Weekday, All Day



Passengers per Revenue Hour

- Trolley lines were, by far, the most productive in the system.
 - Blue Line averaged 304 pph.
 - Orange Line averaged 212 pph.
- The urban bus routes fared well, with many routes averaging over 50 passengers per hour (the system-wide bus average was 39 passengers per hour).
- The lowest-performing routes generally were located away from the downtown in peripheral service areas.



Passengers per Revenue Hour



Regional Rail

- NCTD Coaster
 - Locomotive hauled (push-pull) service between Oceanside and San Diego Santa Fe Depot, serving Carlsbad, Encinitas, Solana Beach, Sorrento Valley and Old Town.
 - Service is primarily peak periods with limited midday and Saturday service.
 - Corridor constrained with mostly single track operations, running along the bluffs at Del Mar and a large deviation around Miramar to avoid tunneling under Del Mar and University City.
- Amtrak Surfliner
 - Regional service (again locomotive hauled push-pull) in the same corridor as the Coaster, linking Orange, Los Angeles, and Ventura Counties (and points north) with San Diego.
 - Amtrak makes more limited stops in San Diego County at Oceanside, Solana Beach, and Old Town (selected trips), terminating at San Diego Santa Fe Depot.
 - Amtrak operates all-day, all-week service, with headways generally between 60-120 minutes.
- Amtrak/NCTD agreement allows monthly pass holders on Coaster to use Amtrak service and the reverse for Amtrak pass holders. This provides Coaster users with an additional 12 weekday round trips and full weekend service within the Oceanside-San Diego corridor.
- NCTD and Amtrak are working together to expedite double tracking the alignment between Oceanside and San Diego, which sees each operator compete with each other and freight traffic for a limited set of slots.



California High Speed Rail Authority

- Organization was created in 1996 to set up a vision and plan for introduction of a high speed rail network in California.
- Preferred alignments have been established for all but the Bay Area to Central Valley connection.
- A proposed network of over 700 miles and 30 stations would be served by a fleet of 38 high speed trains able to operate at 220 MPH on fully grade separated alignments.
- Daily ridership estimates are between 115,000–168,000 with annual ridership of 42–68 million.
- High speed rail stations in the San Diego region are planned for Escondido, University City, and downtown San Diego (Santa Fe Depot).
- Travel times from San Diego are estimated as:
 - Los Angeles 1 hr 18 min. (12 min. peak service)
 - San Francisco 3 hr 53 min. (15 min. peak service) via Los Angeles
 - Sacramento 3 hr 29 min. (30 or 60 min. peak service)
- Mixture of express, semi-express, suburban express, local regional services planned.
- While a Los Angeles to Irvine (Orange County) alignment is proposed similar to the current Amtrak route, it will not serve San Diego County. San Diego residents will need to travel via San Bernardino to reach Los Angeles.
- Current planning is looking at an 8-11 year start-up, with a focus on full service by 2020.





Transit Choice Influences

PUSH

Influencing travel mode decisions by:

- Congestion pricing
- Roadway pricing
- Parking restrictions
- Parking fees
- Fuel taxes
- Car registration fees
- Car purchase taxes
- Transit oriented development

COA Focus

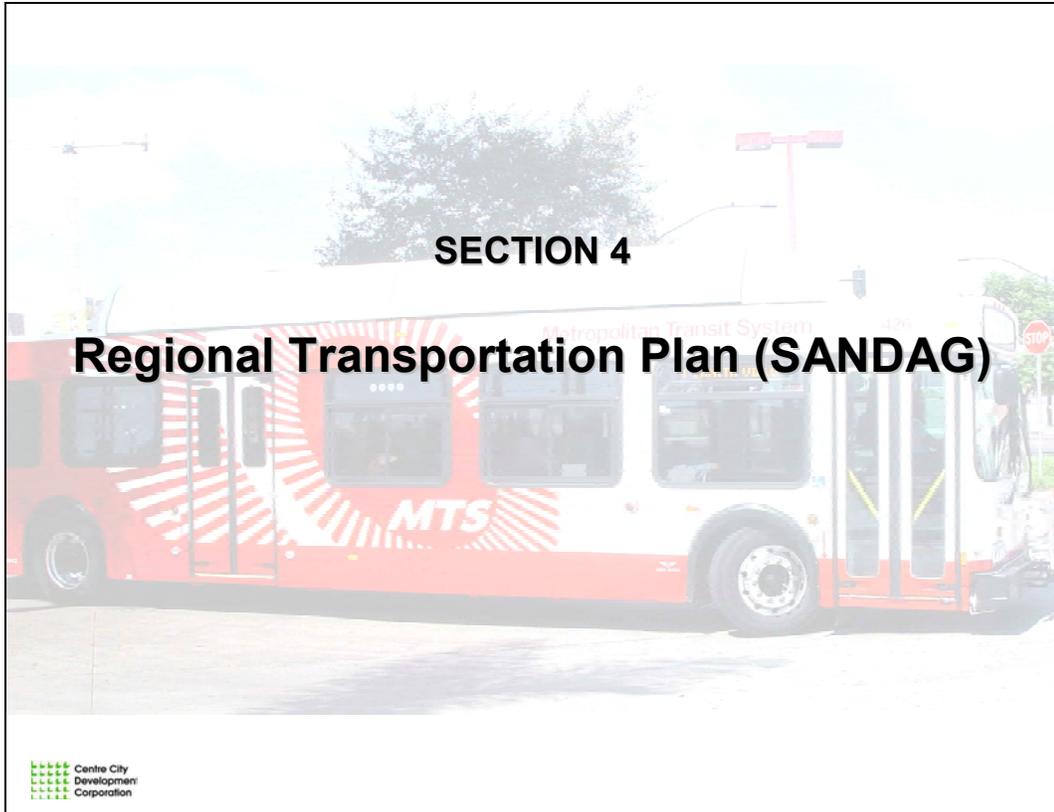
PULL

Attracting passengers to public transit by:



- Fast, predictable service
- High service levels
- Full service spans
- Easy, reliable transfers
- Comprehensive network of services
- Attractive pricing
- Comfortable, clean vehicles
- Comfortable, clean wait areas
- High levels of information
- Safe and secure

Centre City Development Corporation



SECTION 4

Regional Transportation Plan (SANDAG)

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Regional Transportation Plan For Better Mobility

Regional Transit Vision:

A network of fast, flexible, reliable, safe and convenient transit services that connects people to the region's major employment and activity centers.

New services will travel at 40 MPH compared to corridor service at 25 MPH and will run at least every 10 minutes.

An integrated transit system will connect regional, corridor and local services.

Key Components

- Land Use: Location of key facilities has significant impact on travel demand; regional commitment to "smart growth" through co-ordination of transportation and land use planning.
- Systems Development: New and better connections to more efficiently move people on transit and in cars, with key focus on Managed/HOV lanes on the highway system.
- Systems Management: Maximizing system operations making best use of existing transportation resources and information.
- Demand Management: Reducing trips in peak periods and encouraging alternatives to driving alone.

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Regional Transportation Funding

Funding

- The revenue-constrained Regional Transportation Plan of \$30 billion focuses on major corridors, local roads/streets, transit operations and capital, and non-motorized transportation improvements.
- Key funding is a voter-approved half-cent of local sales tax revenue, known as *Transnet*. This funding has been reconfirmed for 2008-2048, a total of \$14 billion.
- A reasonably expected revenue scenario is assumed to bring \$42 billion, with an unconstrained revenue plan having and estimated \$67 billion in funding.
- For the constrained plan, funding was assumed to come from:
 - 42 percent Local
 - 24 percent Transnet
 - 22 percent State
 - 12 percent Federal

Funding Allocations include:

- *Transit operating subsidies* (12%)
- Transit major corridors (18%)
- Transit rehabilitation (5%)
- Highway widening (11%)
- HOV/managed lanes (14%).



Regional Funding for HOV/HOT, Bicycles, and Air Travel

HOV Network

- The existing San Diego region's HOV network, at 16 lane miles on the I-5, I-15, I-805, and SR 52 corridors, lags well behind those established in neighboring Orange and Los Angeles Counties.
- Improvements and expansion will occur for the existing I-5 (Solana Beach/Del Mar), I-15 (Escondido – Miramar), I-805 (SR52 to I-5, I-905 to SR94) HOV lanes with new initiatives on SR 52, 54, 94, and 125 highways.
- New and expanded managed (HOT – high occupancy toll) lanes are currently being constructed on I-15. The Fastrak automated toll system has operated for several years on the segment between SR-56 and SR-163, with variable charges (congestion pricing) for single occupant vehicles while car pools/transit use these lanes free.
- The I-15 BRT service will use the four HOT/HOV lanes under construction on part of I-15 serving Park and Ride stations at three key intercepts between Escondido and Mira Mesa.

Non-Motorized Alternatives

- SANDAG's plan also includes improvements to the region's bikeways and policy on pedestrian improvements, with a key focus on improved access to transit.

Airport

- With concern over Lindberg Field's single runway being able to handle the demand for future flight operations, new airport sites have been studied with various proposals submitted for public consideration. The public, however, has consistently rejected sites other than Lindberg Field. For the foreseeable future, the near-downtown Lindberg Field site will continue to serve air travel needs.



Mobility 2030 Early Action Transit Initiatives

2008

- New Sprinter rail service Oceanside-Escondido

2010

- BRT from Otay Mesa to University City/Sorrento Mesa via I-805/SR125.
- University City (UCSD – UTC) Super Loop.

2014

- Route 510 Blue Line Trolley off-peak frequency increased from 15 to 10 min.
- I-15 BRT Escondido to downtown San Diego (via I-15/SR94) and to Sorrento Mesa/University City (via I-15/Mira Mesa Boulevard).



Mobility 2030 Later Action Transit Initiatives (Constrained Plan)

2020

- Mid Coast Trolley extension (Old Town to UTC)
- El Cajon Blvd – Downtown San Diego BRT
- Otay Mesa BRT increased to 10-min all day

2030

- Coaster increased from 36-min to 20-min peak, 120 to 60-min off-peak
- Sprinter LRT peak service increased 30 to 15 min.
- Blue Line Trolley off-peak frequency increased 10 to 7.5 min.
- Orange/Green Line Trolleys peak frequency increased 15 to 7.5 min.
- Mid-Coast Trolley increase peak frequency 15 to 7.5 min.
- I-15 BRT off-peak increase 30 to 10 min.
- New BRT Coronado – downtown San Diego – Sorrento Mesa via Hillcrest/Genesee

Key transit capital infrastructure items included in the revenue-constrained plan:

By 2020

- New LRV/rail grade separations (Trolley Blue Line and Sprinter)
- Increased parking at Coaster stations

By 2030

- Full double tracking Coaster and Sprinter rail corridors
- Del Mar Tunnel for the Coaster
- Extension of Sprinter service to North County Fair.



Mobility 2030 - Challenges

Challenges to implementing the plan include:

Market

- Significant population market segments who require a fast and flexible transit service with a good personal experience before they will commit to transit usage.
- Wide dispersal of employment and activity outside of downtown San Diego.
- Low density urban/suburban communities outside the urban core.
- *Plan most focused on areas outside of the urban core and downtown San Diego.*

Service

- Constrained coastal rail corridor requiring massive investment to upgrade.
- Highly visible Trolley light rail service has little future route expansion
- Bus network has a low profile and “is for people without choice”.
- Agreed need to implement a high speed transit network, but not the willingness to put transit ahead of road investment.
- Lack of stable sources of Transit Operating Funds.
- Long timeframes for implementation of Regional Plan Transit initiatives.

Transit is likely to slip further behind in being considered a viable travel alternative in the region.



Parking Supply and Rates

Current Supply - Downtown San Diego Parking

- 9,800 on-street metered and un-metered parking spaces.
- 34,200 spaces in public garages and surface lots.
- 15,700 spaces in private garages and surface lots.
- 11,000 spaces designated specifically for Petco Park.

Parking Rates

- Flat rate for parking meters established by City of San Diego at \$1.25/hour. However, each Parking Meter District is free to set parking meter rates.
- Actual rates ranging from \$.50/hour for nine hours maximum to \$1.25/hour for two hours maximum.
- Parking garage day rates north of Broadway are generally higher than evening rates as this is the daytime office employment zone. Rates south of Broadway lower in daytime, higher evenings due to proximity to the Gaslamp District and Petco Park, with their retail, restaurant and entertainment focus.
- Daily rates range from \$5 to \$10 south of Broadway to \$10-\$20 north of Broadway. After 5pm rates vary from \$5-\$10 flat rates.
- Monthly rates in private garages range from \$100 to \$200.
- When Petco Park first opened at the southern end of downtown, the supply of parking for this venue was around 3,700 spaces. This resulted in high transit ridership. Since the opening year, the parking supply has expanded to 11,000, with the opening of the Padres Parkade garage, with loss in transit ridership. Rates for Petco Park parking range from \$8 to \$15, up to \$20 for preferred parking adjacent to venue.



Parking Policy and TDM

Parking and TDM Requirements

- Parking and transportation demand management standards are described in the Centre City Planning District ordinance (amended 2007).
- Residential uses require one space per dwelling unit with variations dependent on the type of residential uses and income restrictions and provisions for motorcycle and bicycle parking.
- Non-residential use requirements vary from 1.5 spaces per 1,000 square feet of office space to 0.3 spaces per hotel room. There are also provisions for motorcycle and bicycle parking that are based on the number of vehicle stalls.
- The North Embarcadero area has higher parking requirements for office, hotel, retail, and restaurant uses. Parking requirements vary from 0.5 spaces per hotel room to 5 spaces per 1,000 square feet for restaurants.
- As part of the development review process, applicants of commercial and hotel projects over 50,000 square feet must implement a minimum transportation demand management (TDM) measures.

Parking Studies and Policy Initiatives

- In 1992, the City of San Diego conducted its first Comprehensive Parking study, primarily focused on the existing supply of parking and its use, and proposed land uses for the downtown area. Study identified a number of parking spaces needed to support the planned land uses.
- While the study did make mention of having more trips made by transit and ridersharing, it did not outline specific policies or strategies to achieve this.
- The study is no longer relevant because much of the land use has changed since 1992. There has been a significant shift to residential land uses and downtown baseball stadium at Petco Park has opened.
- Neighborhood level parking studies compliment comprehensive study, focusing on parking supply and demand analysis, not incorporating enhanced transit, ridesharing, and alternative transportation modes.



Parking Meters and Permits

Parking Meter District

- In 1997, City of San Diego established the Parking Meter District Program to allow neighborhoods to better meet parking and mobility needs.
- Forty-five percent of parking revenues generated by each district are used for district approved efforts to address parking and access issues. This revenue source has allowed each district to increase the availability, supply, and effective use of parking for residents, visitors, and employees.
- Each district is also responsible for setting the number of parking meters and what the rates for each meter will be as well as setting the locations for the various types of loading zones. The downtown district was one of three districts that were created.

Residential Permit Parking

- In 2002, a study was undertaken of Cortez Hill and Little Italy neighborhoods north of the core area of downtown San Diego to evaluate the need for residential permit parking programs.
- Study concluded that the Cortez Hill and Little Italy neighborhoods both met the criteria for establishing residential permit parking areas. To date, Cortez Hill has implemented the system, while Little Italy and East Village are considering it.



Bikes

Bicycle Paths

- There are two primary bike paths that operate through the downtown area: the Bayshore Bikeway, and the North Embarcadero bike path.
- The 24-mile Bayshore Bikeway route extends from the Broadway Pier western edge of downtown, past seaport Village, Convention Center, Gaslamp Quarter and Petco Park, then travelling around San Diego Bay to the Coronado Ferry Landing. It is a combination of off-street bike paths and on-street bike lanes.
- A second bicycle path running through downtown is the Embarcadero Bayside Bike and Walking Path, adjacent to San Diego Bay, running from Spanish Landing Park to Marina Park Way. It links with the Bayshore Bicycle path at Broadway Pier.

Bicycle Lanes and Routes

- There are no designated bicycle lanes on any streets in downtown. There are designated bike routes along:
 - B Street between Pershing and 4th Avenue
 - West A Street between Kettner and 4th Avenue
 - 4th, 5th and 6th Streets north of B Street.

Pedicabs

- Pedicabs are seen in most of the tourist/recreational areas in downtown south of Broadway and along the Embarcadero. The City of San Diego regulates pedicabs.



Pedestrians

Pedestrian Activity

- Downtown pedestrian activity varies by specific neighborhoods and their land uses.
- Within Civic/Core and Columbia areas north of Broadway, peak pedestrian activity occurs during peak hours and lunchtime, due to concentration of office workers.
- India Street area generates pedestrian traffic during the day and evening due to retail, restaurant, and residential uses.
- 4th and 5th Avenues in the Gaslamp Quarter also has high concentrations of pedestrian activity at night for dining and entertainment purposes.
- Baseball games, major conventions, and special events create high levels of pedestrian activity primarily focused south of Broadway/east of Fourth.

Embarcadero Bayside Walking Path

- This path is adjacent to San Diego Bay and runs from Spanish Landing Park to Marina Park Way.

Park-to-Bay Link

- This \$30 million public-improvement project is located along Park Boulevard between C and K streets. The goal of the project is to complete a 100-year old vision connecting the two regional assets of Balboa Park and San Diego Bay
- Improvements were made to the public right-of-way by creating a landscaped pedestrian promenade with parking, street trees, lighting, and public art.
- The final project in the Park-to-Bay Link will be the completion of the Harbor Drive pedestrian bridge to provide safe crossing over heavily traveled Harbor Drive and existing train and trolley tracks. Construction may begin in 2008.



Comprehensive Operational Analysis

Service Development Plan

Fall 2005



A Vision for MTS Services

- **Develop a Customer Focused System:** Provide services that reflect the travel needs and priorities of our customers
- **Develop a Competitive System:** Provide services that are competitive with other travel options by meeting market segment expectations
- **Develop an Integrated System:** Develop transit services as part of an integrated network rather than a collection of individual routes
- **Develop a Sustainable System:** Provide appropriate types and levels of service that are consistent with market demands and are maintainable under current financial conditions



Page B-45

Regional Service Concept

3 Tiers of Service		
<p style="text-align: center;">Urban Network Services</p> <p>Network of routes with high frequency and consistent span of service to support spontaneous use for wide range of travel needs.</p>	<p style="text-align: center;">Commuter Services</p> <p>Direct service for one seat travel for commute corridors with “critical mass”. High frequency only during peak hours.</p>	<p style="text-align: center;">Community Based Services</p> <p>Customized services tailored to individual community needs. Flexible routing and schedule that may vary throughout day and week.</p>



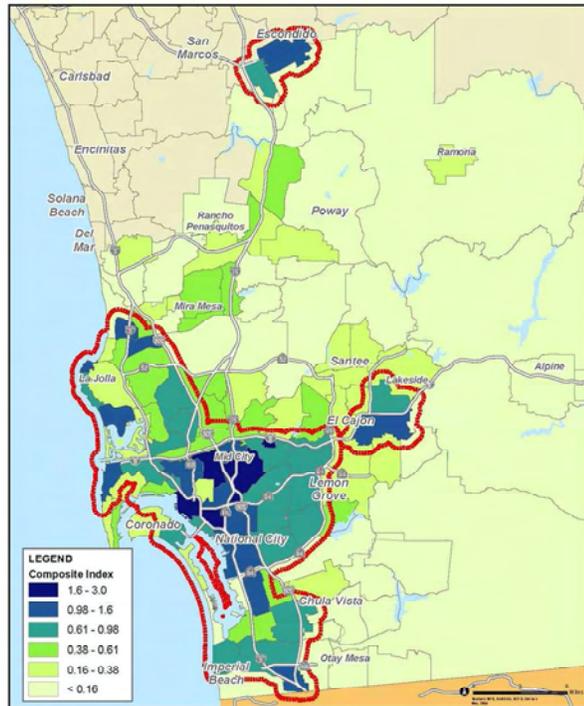
Service Tier Attributes

	Markets Served	Frequency	Span of Service	Service Attributes
Core Urban Network	Wide range travel needs.	15 minutes or better all day along key corridors, with a minimum of 30 minutes throughout the network.	Consistent <u>all-day/every day</u> service on key corridors, with a minimum of all day weekday service throughout the network.	Network of local and corridor services with convenient connections to regional network.
Commuter Services	Peak period work trips.	15 minutes or better during peak periods and 60 minutes during off-peak periods on key corridors.	During prevailing work hours along key corridors, and peak period only on other corridors.	Direct service for one seat travel for key origin-destination travel pairs.
Community Based Services	Specifically defined market needs.	Tailored to specific market needs.	Tailored to specific market needs.	Flexible routing and schedule. May vary throughout day and week.



Urban Network Service Area

- Downtown San Diego is the heart of the Core Urban Network (defined by red boundary).
- Areas outside of urban core were candidates for commuter or community market based transit services.



Composite Index

Poverty, Auto-deficit, Easy Goer & Flexible Flyer Demand, & Employment Densities



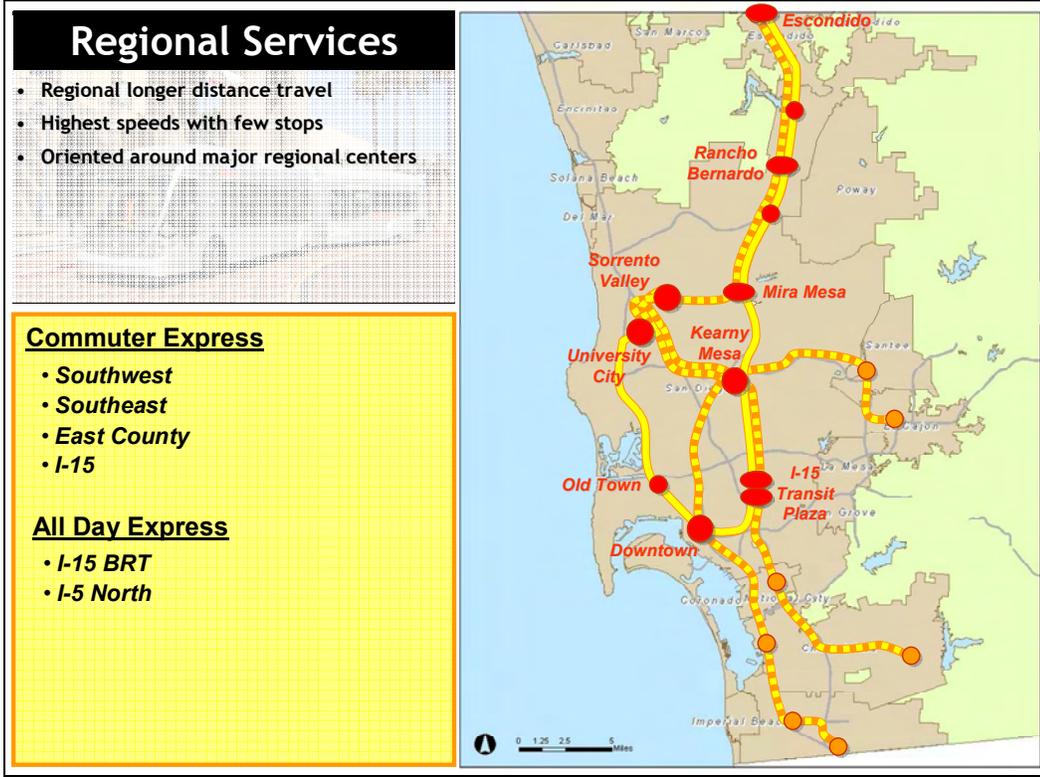
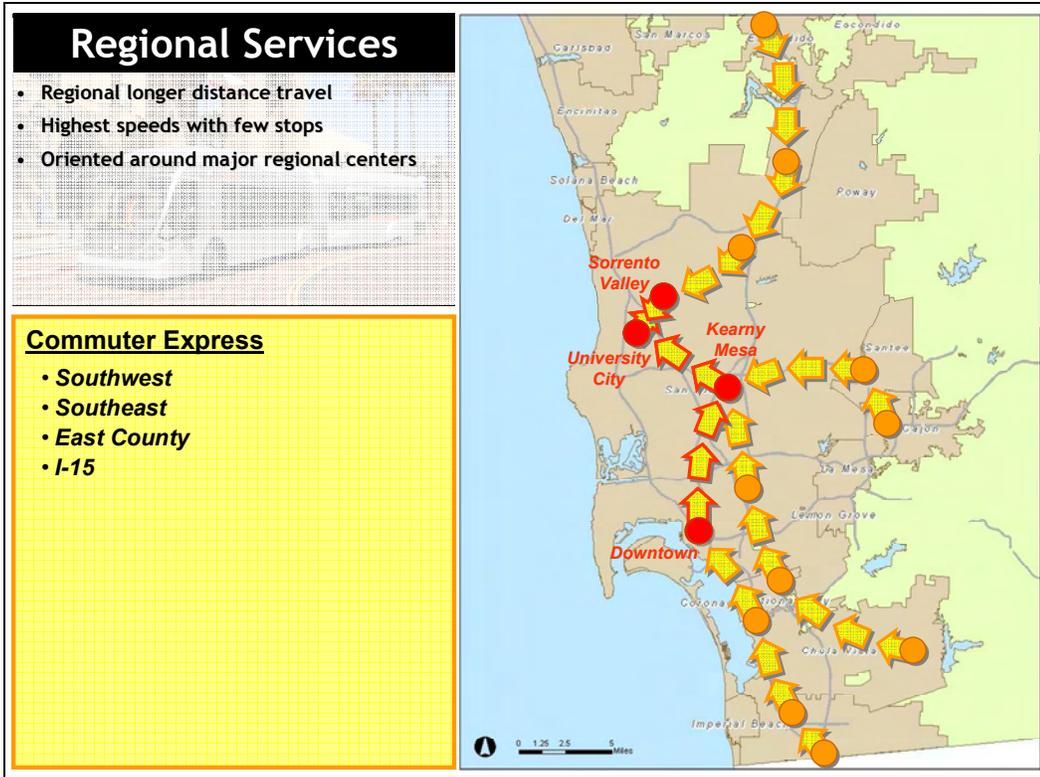
Transit Service Options

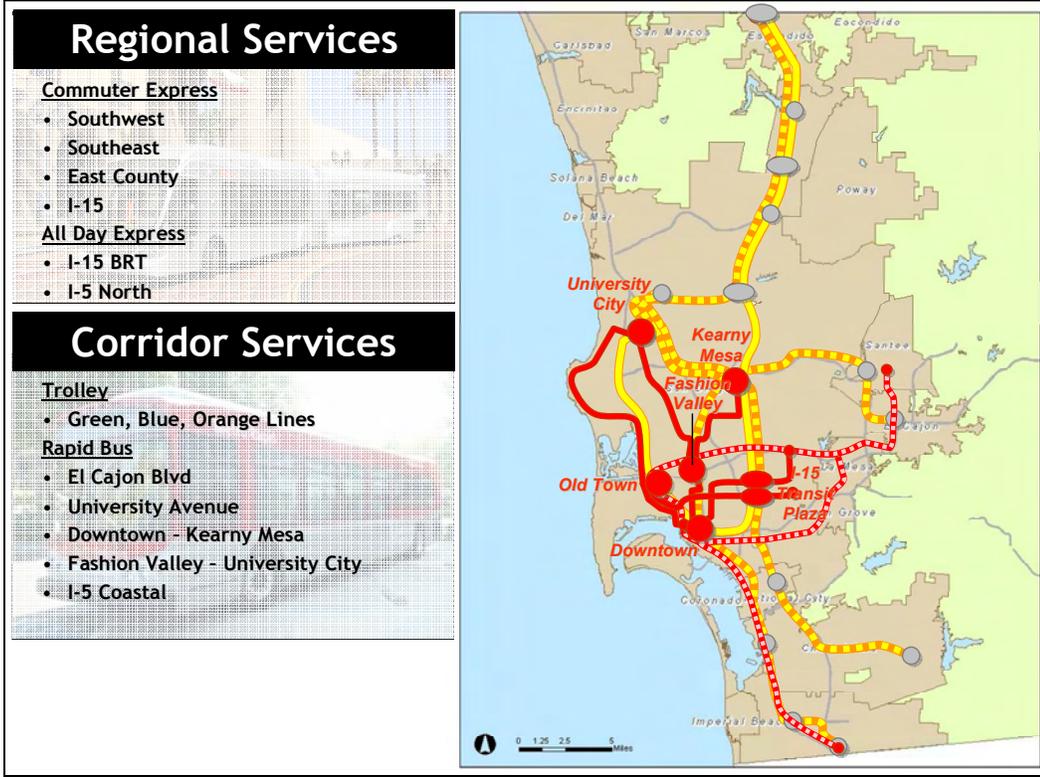
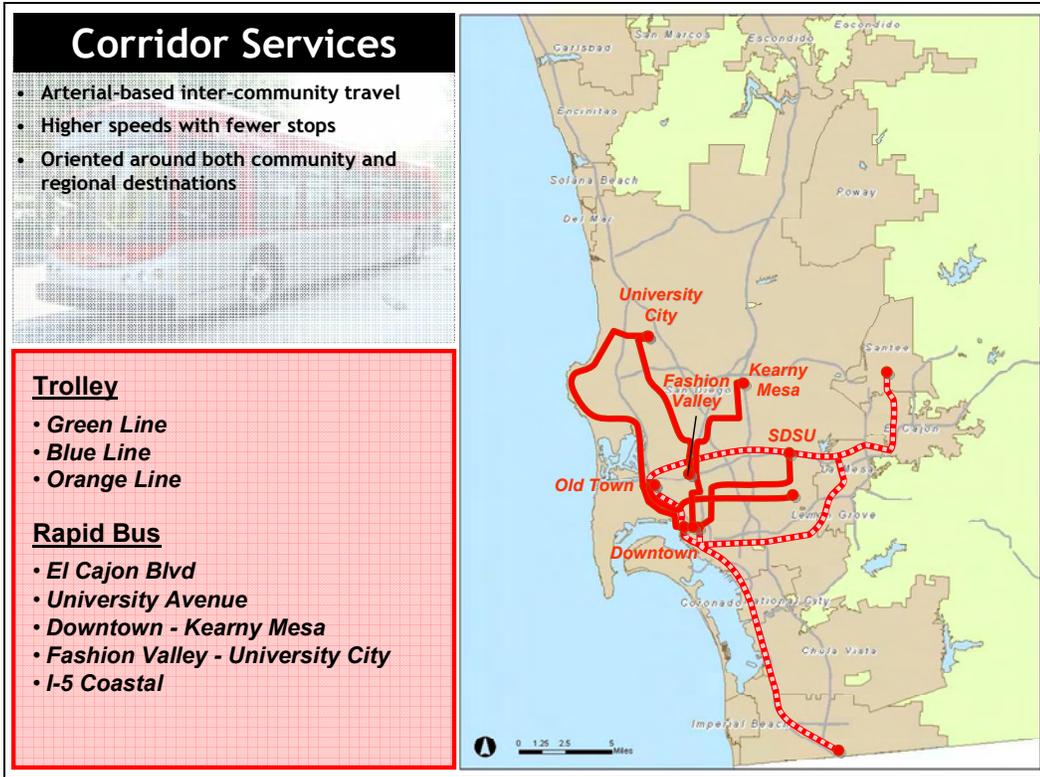


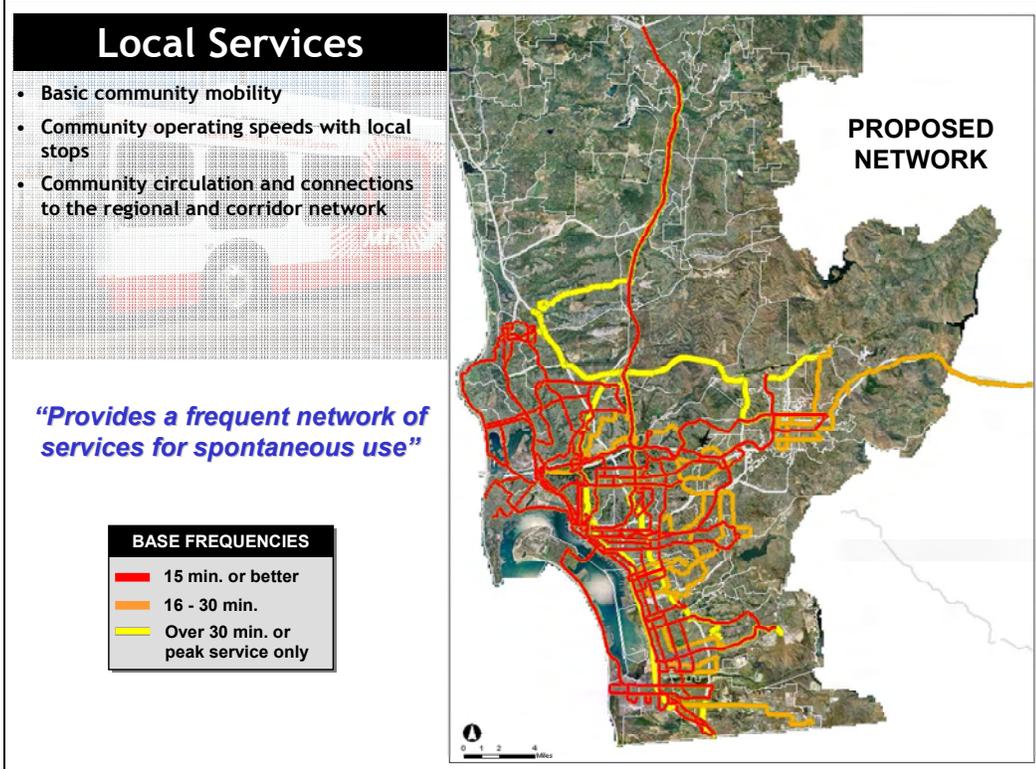
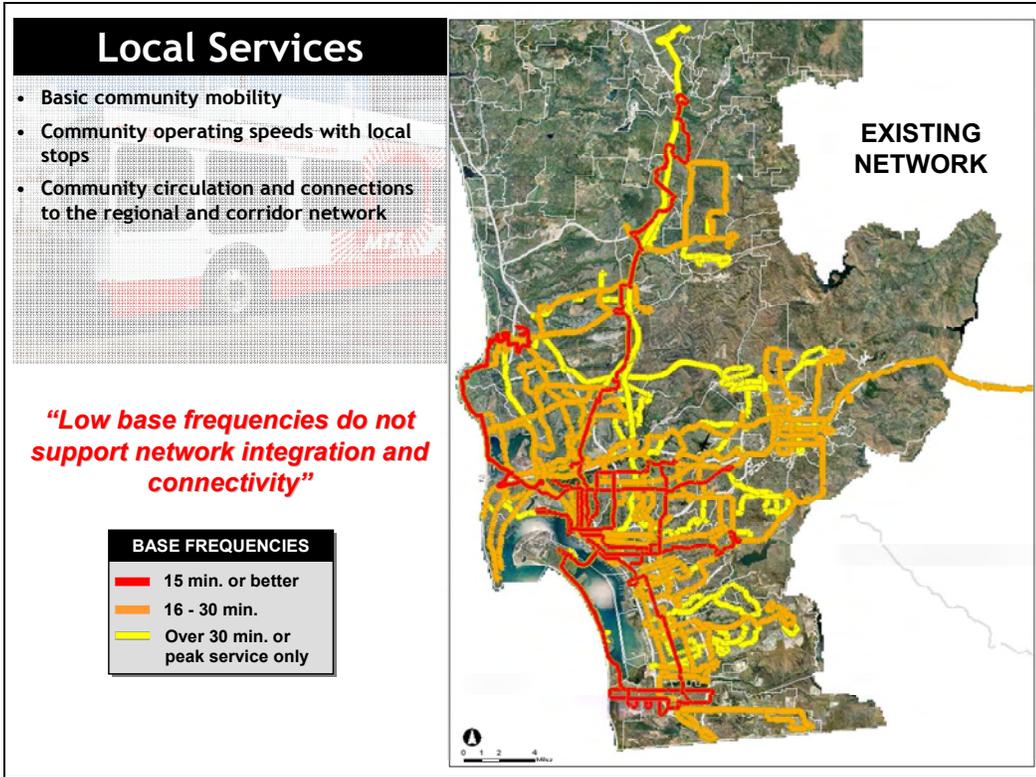
- Regional transit (yellow)
- Corridor transit (red)
- Local transit (blue)
- Neighborhood transit (green)

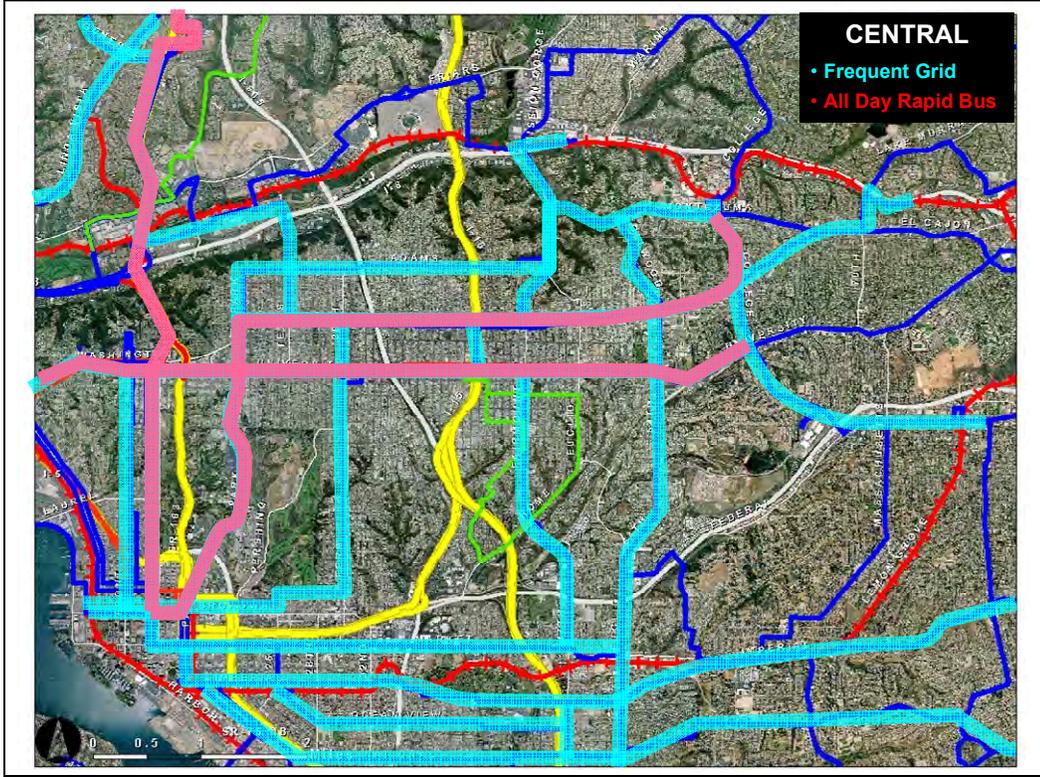
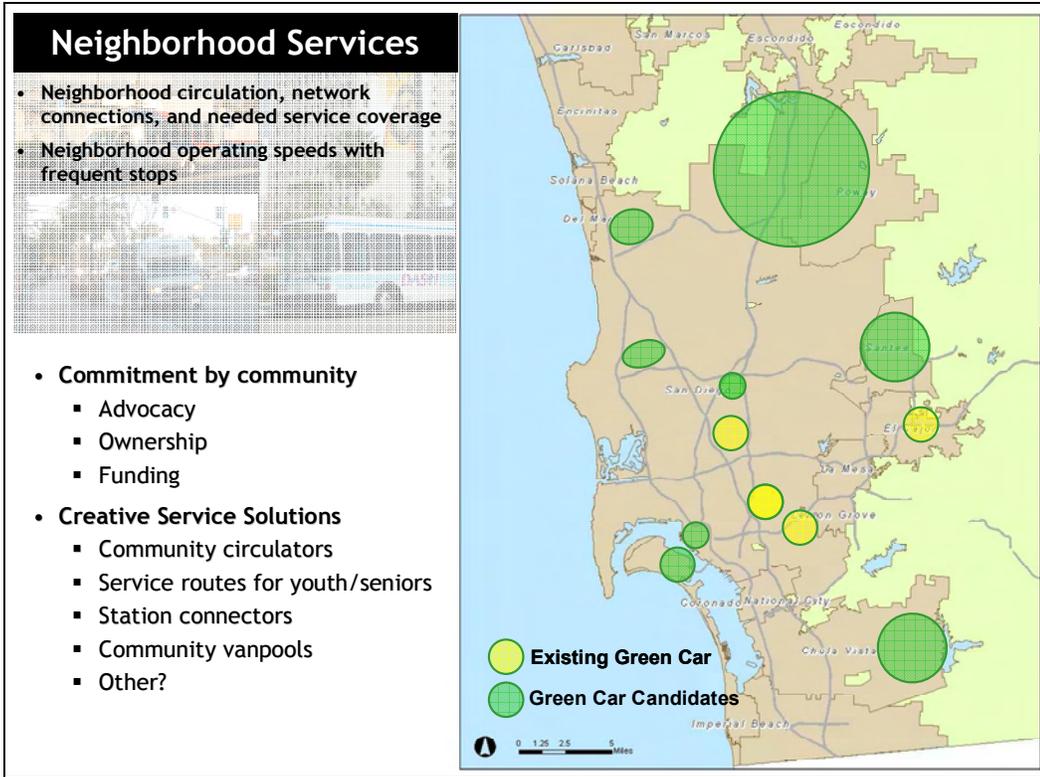
Builds on SANDAG "Transit First"

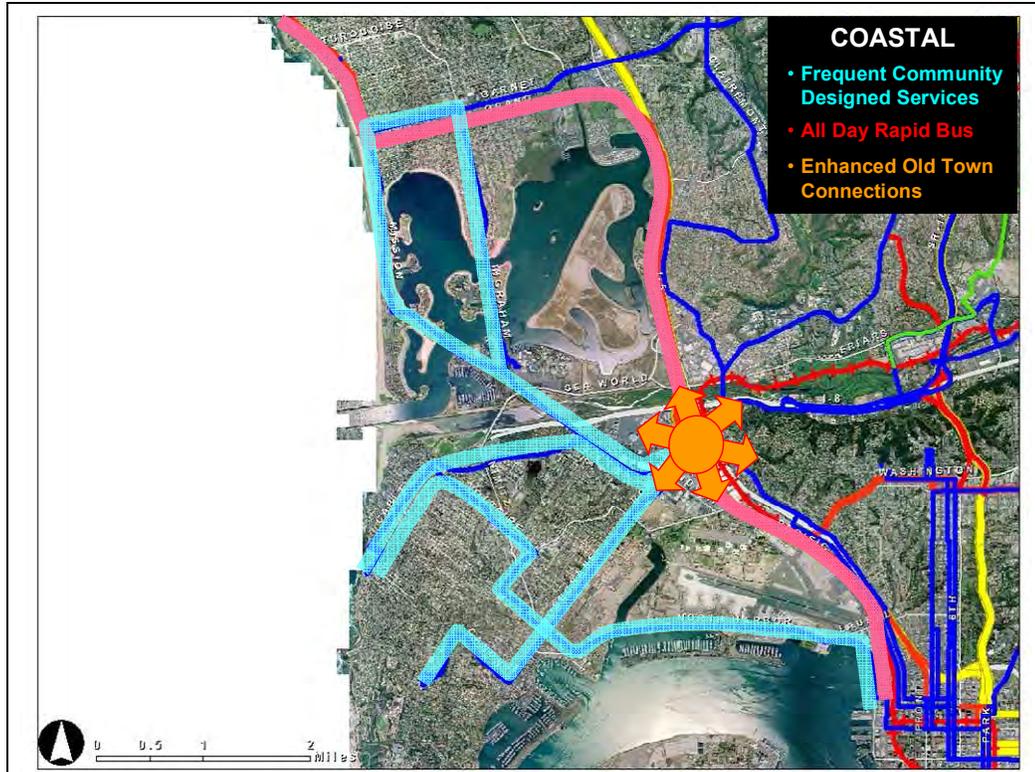












Summary of Significant Changes

- 5 new high frequency commuter express (BRT) routes
- Significantly expanded 15-minute frequency urban network
- Services are significantly more direct to regional centers and transfer hubs
- Enhanced regional connections at major transfer hubs including Old Town, I-15 Transit Plazas, Kearny Mesa and UTC
- New circulator routes customized to community needs
- Reduced service coverage outside the urban network area



Appendix B3: Travel Demand and Transit Information

1. Daily Transit boardings & alightings by district – 2010/2030
2. Tabular summaries of downtown trips – existing/2030
3. Trip ends by downtown zone – existing/2030
4. Regional trip ends destined to/from downtown– existing/2030

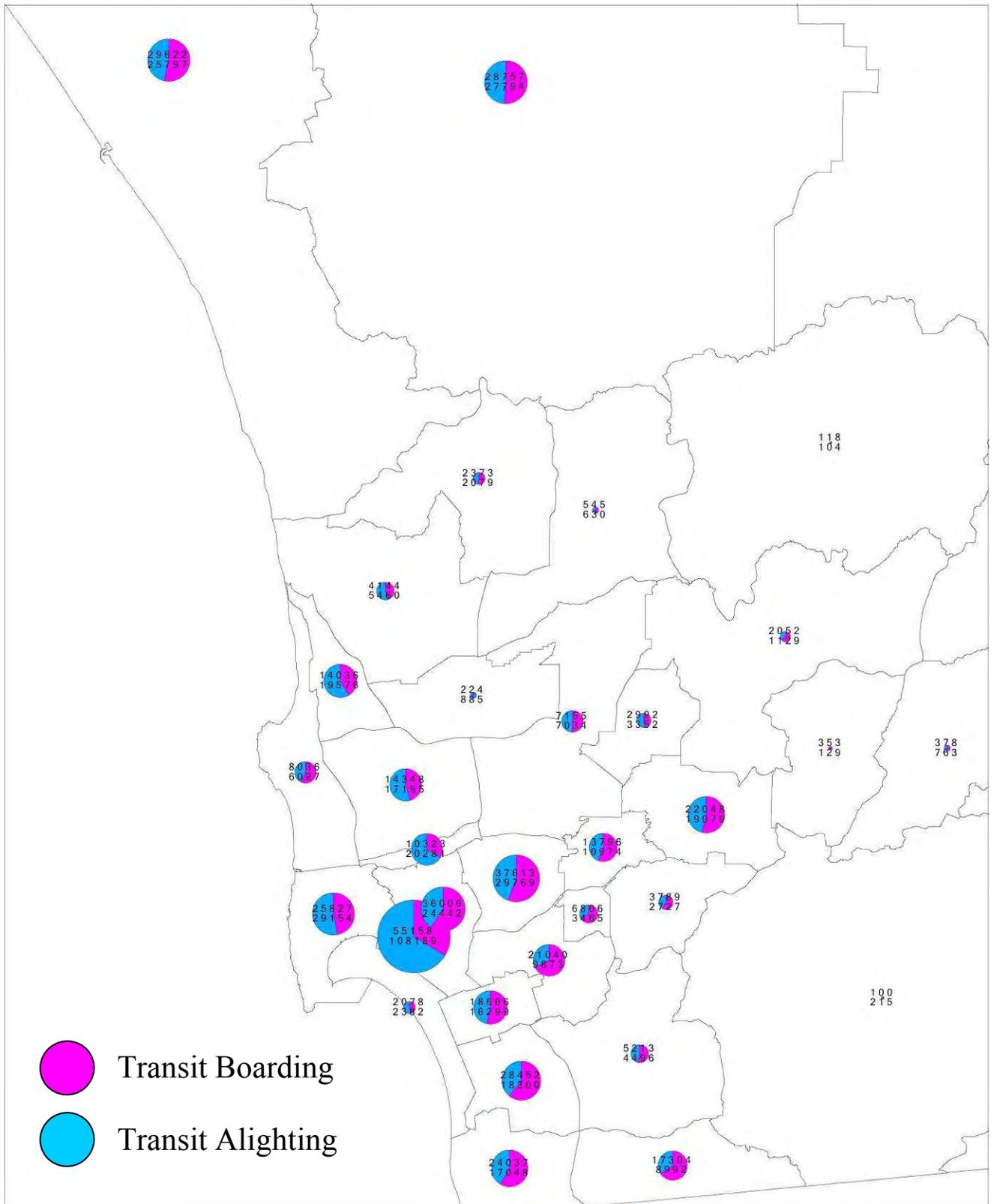
All data provided by SANDAG

Daily Boarding & Alighting 2010-2030

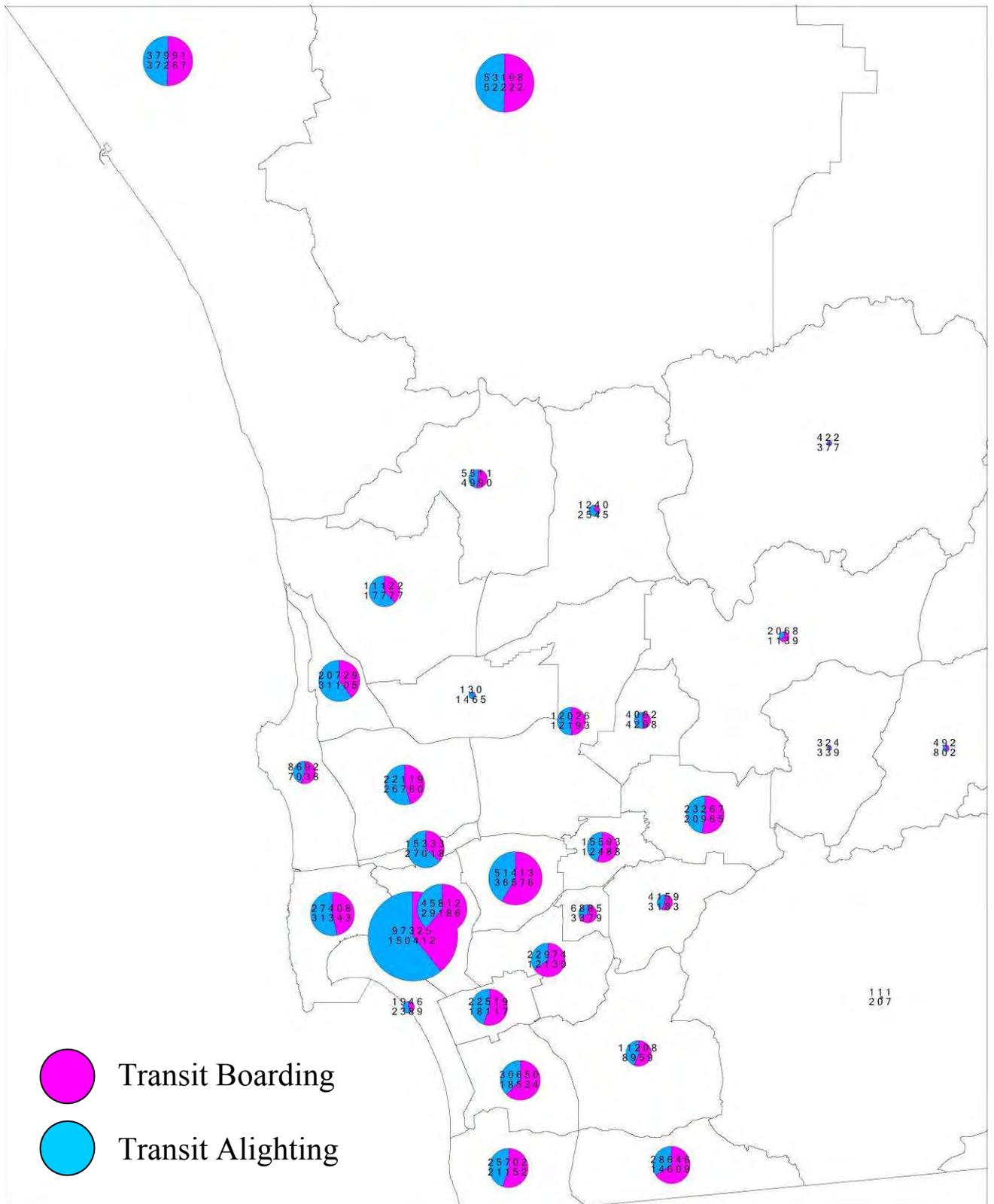
Daily	2010		2030		Growth	
	on	off	on	off	on	off
Boarding & Alighting						
County Administration	250	227	144	226	-42%	0%
Little Italy / Midtown	3,976	4,031	8,418	5,047	112%	25%
San Diego Harbor	501	1,321	846	1,788	69%	35%
Columbia	11,286	27,686	18,995	47,684	68%	72%
Business Core	16,613	41,075	18,501	34,436	11%	-16%
Cortez Hill	0	0	0	0	-	-
City College	1,861	5,292	1,075	3,468	-42%	-34%
Horton Plaza	972	3,477	739	2,954	-24%	-15%
Marina	2,436	3,567	3,756	6,800	54%	91%
Gaslamp Quarter	4,419	7,137	8,525	17,278	93%	142%
Village Park	6,580	5,758	7,327	5,628	11%	-2%
East Village (north)	192	794	3,660	1,187	1806%	49%
Seaport Village	0	0	0	0	-	-
Convention Center	0	0	0	0	-	-
Ballpark District	5,758	6,836	24,600	22,957	327%	236%
East Village (south)	314	988	739	959	135%	-3%
North County West	29,622	25,797	37,991	37,267	28%	44%
North County East	28,757	27,794	53,108	52,222	85%	88%
East County	0	0	0	0	-	-
North San Diego	2,373	2,079	5,511	4,990	132%	140%
Poway	545	630	1,240	2,545	128%	304%
Ramona	118	104	422	377	258%	263%
Del Mar-Mira Mesa	4,144	5,460	11,122	17,777	168%	226%
University	14,036	19,576	20,729	31,105	48%	59%
Miramar	224	885	130	1,465	-42%	66%
Coastal	8,036	6,097	8,692	7,038	8%	15%
Kearny Mesa	14,348	17,195	22,119	26,760	54%	56%
Elliott - Navajo	7,155	7,034	12,026	12,193	68%	73%
Santee	2,992	3,352	4,062	4,298	36%	28%
Lakeside	2,052	1,129	2,068	1,139	1%	1%
Kearny Mesa	10,323	20,281	15,333	27,018	49%	33%
Peninsula	25,827	29,154	27,408	31,343	6%	8%
Central San Diego	36,006	24,442	45,812	29,186	27%	19%
Mid-City	37,613	29,769	51,413	36,576	37%	23%
La Mesa	13,796	10,974	15,593	12,488	13%	14%
El Cajon	22,048	19,079	23,267	20,965	6%	10%
Harbison Crest	353	129	324	339	-8%	163%
Alpine	378	763	492	802	30%	5%
Coronado	2,078	2,382	1,946	2,389	-6%	0%
National City	18,666	16,299	22,519	18,117	21%	11%
Southeastern San Diego	21,040	9,873	22,974	12,130	9%	23%
Lemon Grove	6,806	3,465	6,885	3,379	1%	-2%
Spring Valley	3,789	2,727	4,159	3,183	10%	17%
Chula Vista	28,452	18,300	30,650	18,534	8%	1%
Sweetwater	5,213	4,496	11,208	8,959	115%	99%
Jamul	100	215	111	207	11%	-4%

Negative growth in transit boarding and alighting: Boarding and alighting are allocated to a zone depending on the stop location. The boundaries of the zones follow the streets layout meaning that stops on the opposite side of the same street might belong to different zones. If, between 2010 and 2030, transit line routes change the transit riders might use a different stop to access the same area and consequently be allocated to another zone.

Daily Boarding & Alighting 2010



Boarding & Alighting 2030



Trip ends by downtown zone – existing & 2030

Daily Trips Originating from Downtown San Diego

Total Person Trips	2003	2030	Growth
County Administration	6,291	13,102	108%
Little Italy / Midtown	75,516	131,796	75%
San Diego Harbor	21,687	84,403	289%
Columbia	94,713	140,598	48%
Business Core	71,363	144,980	103%
Cortez Hill	11,710	25,729	120%
City College	5,155	5,755	12%
Horton Plaza	24,033	29,979	25%
Marina	50,287	66,555	32%
Gaslamp Quarter	39,355	77,231	96%
Village Park	10,977	51,321	368%
East Village (north)	9,938	49,286	396%
Seaport Village	28,238	36,943	31%
Convention Center	6,080	9,683	59%
Ballpark District	9,348	45,947	392%
East Village (south)	9,378	48,291	415%
Total from Downtown	474,069	961,599	103%

Daily Trips Destined to Downtown San Diego

Total Person Trips	2003	2030	Growth
County Administration	14,129	24,760	75%
Little Italy / Midtown	83,113	89,221	7%
San Diego Harbor	35,175	115,777	229%
Columbia	107,423	145,858	36%
Business Core	89,312	130,226	46%
Cortez Hill	5,458	8,821	62%
City College	27,121	26,432	-3%
Horton Plaza	33,266	45,134	36%
Marina	35,813	46,203	29%
Gaslamp Quarter	64,043	119,674	87%
Village Park	12,954	20,033	55%
East Village (north)	13,903	18,988	37%
Seaport Village	20,885	35,854	72%
Convention Center	20,659	25,405	23%
Ballpark District	8,644	28,947	235%
East Village (south)	9,978	26,431	165%
Total to Downtown	581,876	907,764	56%

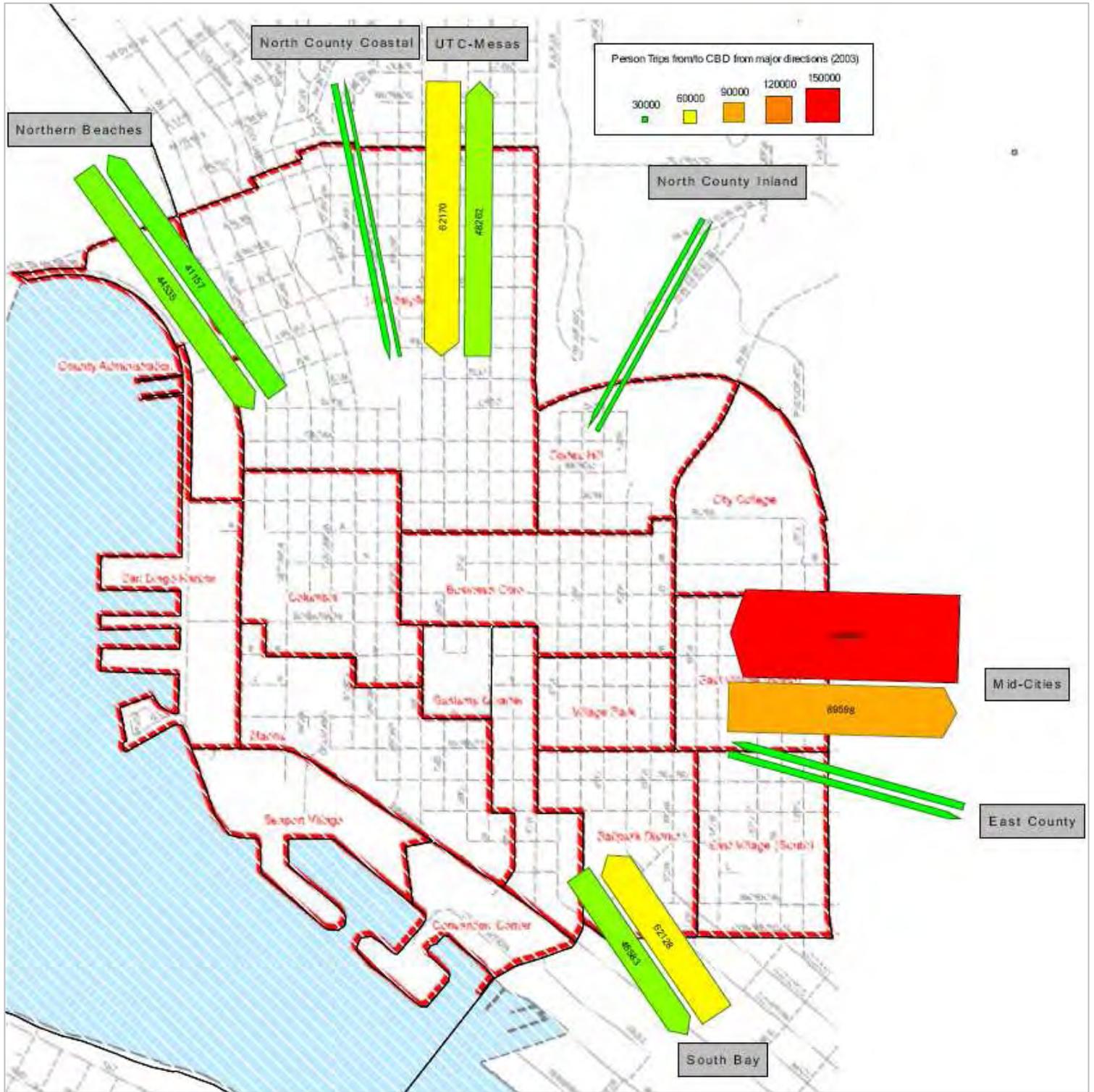
Regional trip ends distribution – existing & 2030

Person trips 2003	ga00	ga01	ga02	ga03	ga04	ga05	ga06	ga07	
Downtown	38%	0%	0%	4%	2%	4%	2%	1%	3%
North County Coastal	2%	77%	14%	3%	5%	1%	1%	1%	17%
North County Inland	1%	14%	79%	3%	4%	1%	1%	2%	17%
Northern Beaches	8%	1%	0%	55%	6%	3%	1%	1%	6%
UTC-Mesas	11%	6%	4%	18%	64%	11%	4%	6%	19%
Mid-Cities	27%	1%	1%	11%	12%	66%	14%	13%	17%
South Bay	11%	0%	0%	4%	3%	8%	76%	2%	12%
East County	2%	1%	1%	2%	3%	7%	2%	74%	10%

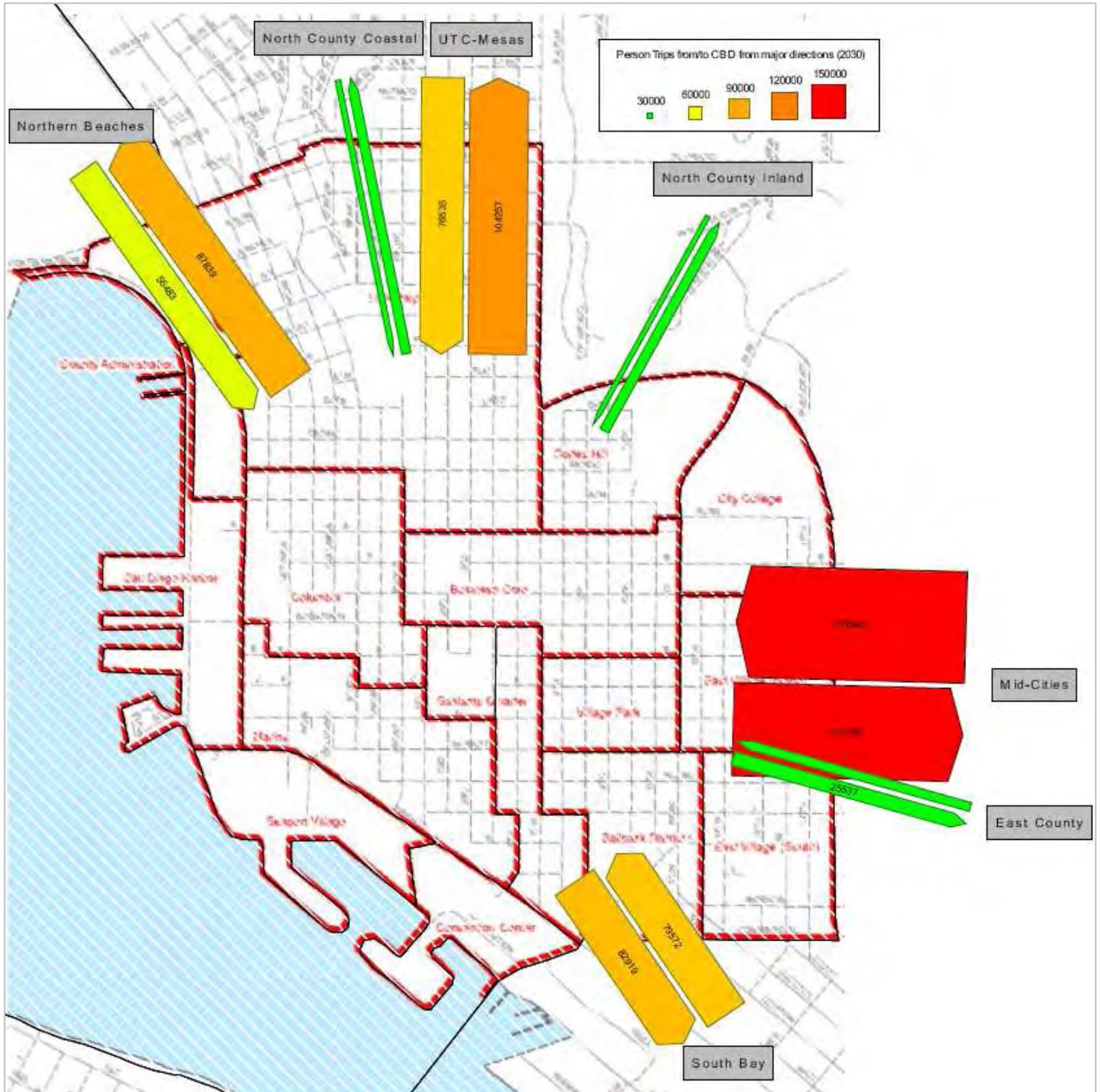
Person trips 2030	ga00	ga01	ga02	ga03	ga04	ga05	ga06	ga07	
Downtown	51%	0%	0%	6%	3%	6%	3%	1%	4%
North County Coastal	1%	75%	13%	3%	5%	1%	0%	1%	16%
North County Inland	1%	14%	79%	4%	4%	1%	0%	2%	18%
Northern Beaches	6%	1%	1%	51%	6%	3%	1%	1%	6%
UTC-Mesas	8%	7%	4%	17%	62%	11%	3%	6%	17%
Mid-Cities	22%	1%	1%	12%	13%	64%	11%	12%	16%
South Bay	9%	0%	0%	5%	3%	9%	79%	3%	13%
East County	2%	1%	1%	3%	4%	7%	2%	75%	10%

The above table can be read as 8% of (2003) trips destined to Downtown are originating from Northern Beaches. This shows that the trip distribution remains stable from 2003 to 2030 except for the Downtown area where there is a significant amount of internalization (+12 points) as well as a reduction of trips originating from other areas (especially Mid-Cities with - 5 points).

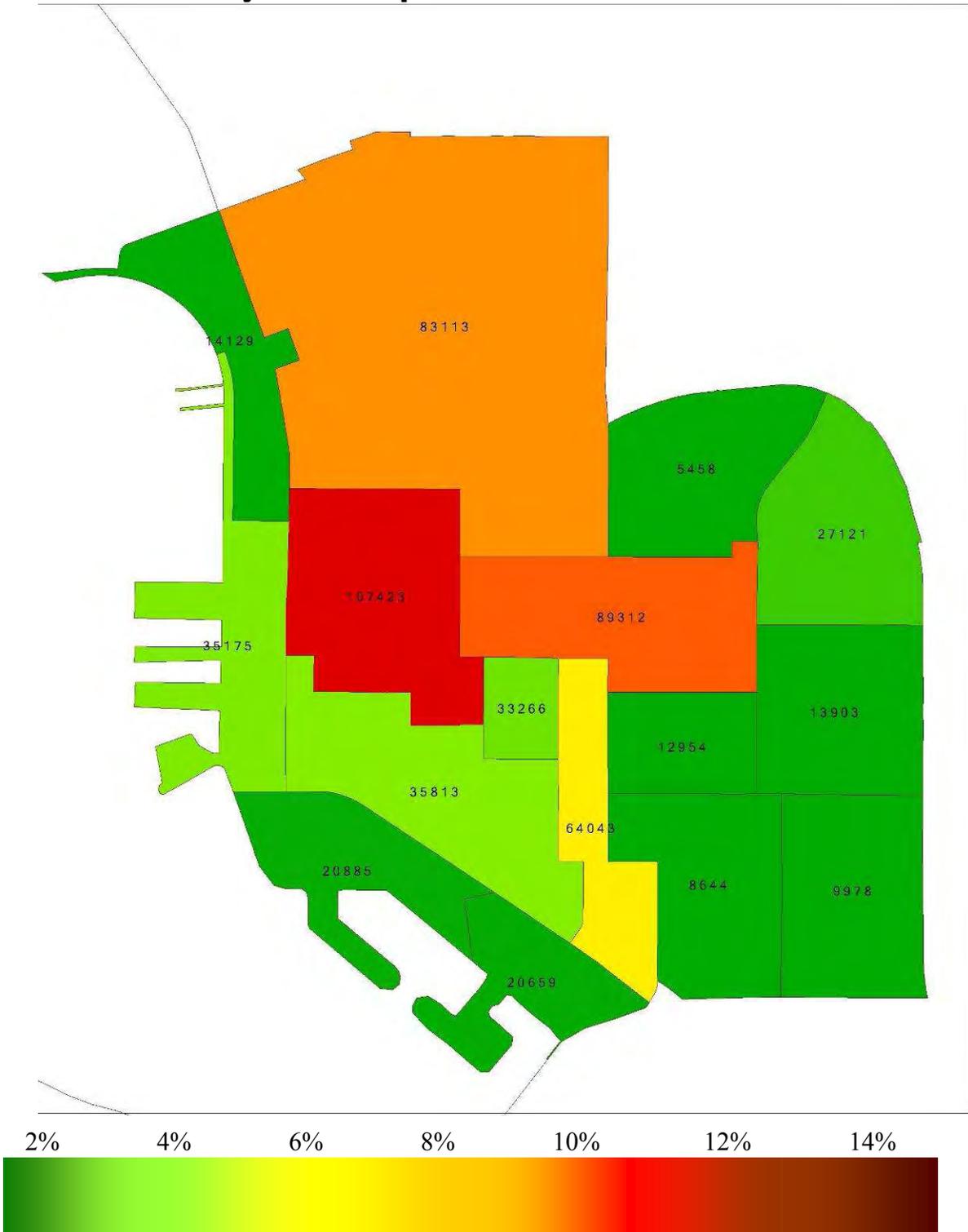
Daily Person Trips from/to San Diego Downtown 2003



Daily Person Trips from/to San Diego Downtown 2030

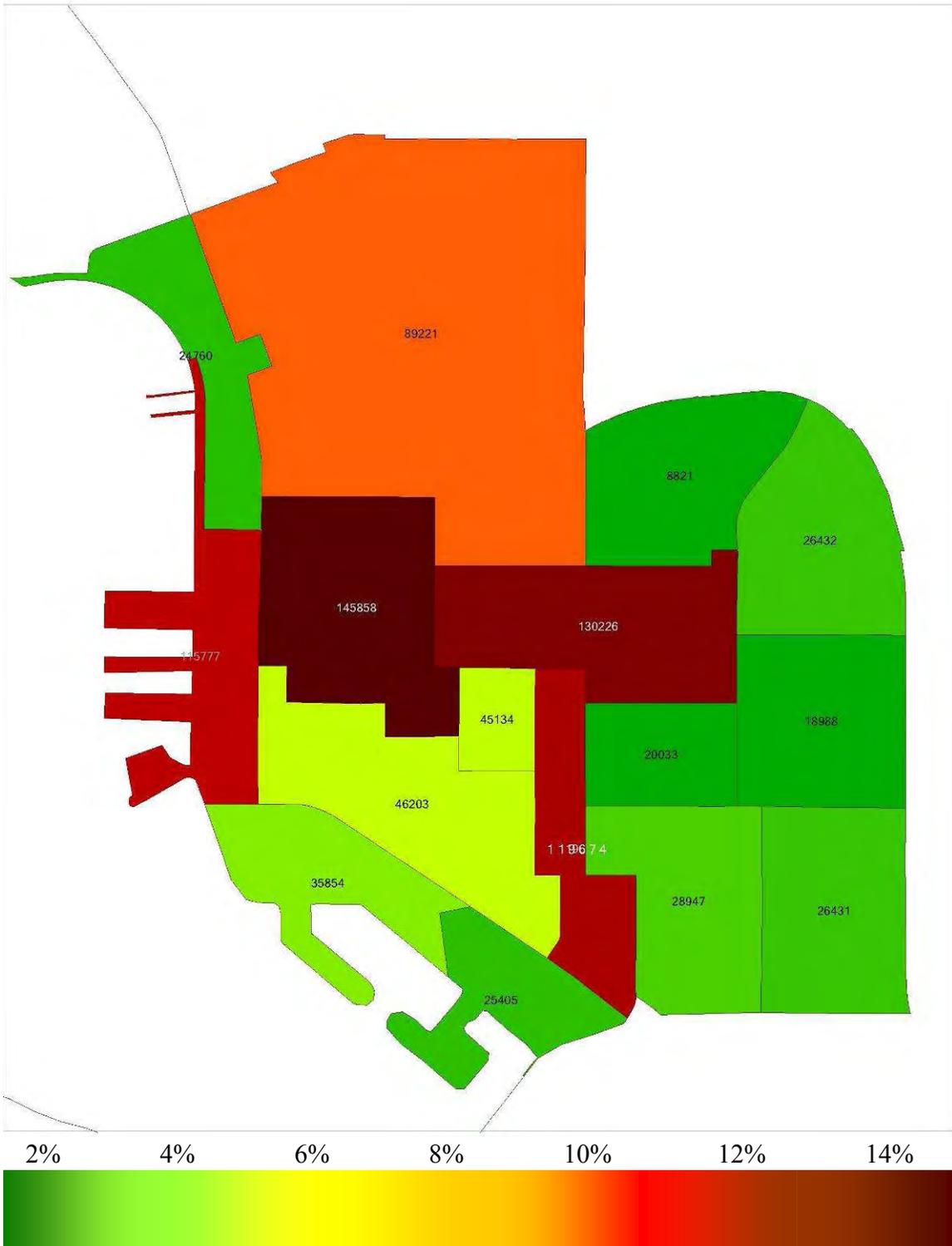


Daily Person Trip-ends in the Downtown - 2003



Percentage of person trip-ends
 (Example: Columbia District attracts about 12 % of the daily trips destined to downtown;
 daily trip-ends =107423)

Daily Person Trip-ends in the Downtown - 2030



Percentage of person trip-ends
 (Example: Columbia District attracts about 16 % of the daily trips destined to downtown;
 daily trip-ends =145858)



Appendix C

Workshop #1 Summary Report

Appendix C – Workshop #1 Summary Report

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Tuesday 22 January	C-1
Wednesday 23 January	C-2
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INTRODUCTION

The McCormick Rankin team assembled in San Diego for a brainstorming workshop for the CCDC (Centre City Development Corporation) Downtown Transit Alternative Plan, conducted Tuesday 22 and Wednesday 23 of January 2008.

Attendees included:

- Ken Gosselin, President, McCormick Rankin US
- Sean Rathwell, Project Manager, McCormick Rankin US
- George Hazel, Managing Director, McCormick Rankin McLean Hazel
- Neil Cagney, Managing Director, McCormick Rankin Cagney
- John Bonsall, McCormick Rankin US
- Tom Middlebrook, McCormick Rankin US
- Russ Chisholm, President, Transportation Management and Design
- Joe Forgiarini, Senior Manager, Transportation Management and Design
- Mark Peterson, Transportation Group Director, Wilson & Company (CCDC on-call transportation planning consultant)

The purpose of this report is to summarize the events and discussions that arose from the January workshop session.

MONDAY 21 JANUARY

A tour of downtown San Diego and key transit facilities occurred on Monday afternoon. CCDC project manager, Dean Coker, planning consultant, Mark Peterson, and Dave Schumacher from SANDAG, the regional transportation planning agency, helped lead the tour for the team.

TUESDAY 22 JANUARY

Tuesday morning saw the team reviewing the existing conditions for transit in San Diego, from both a transit market and service perspective. A presentation was given by Russ Chisholm and Joe Forgiarini from Transportation Management and Design, as local San Diego staff. Duncan McFetridge and staff from SOFAR (Save Our Forests and Ranchlands) also attended this presentation.

For the second half of the morning session, the team was joined by various planning and engineering staff from CCDC, City of San Diego and the local transit agency MTS, providing further input on the “existing conditions” for San Diego.

Key points noted by the group regarding the existing conditions were:

1. Current transit system has received a significant revision over the last two years, improving the effectiveness of the MTS bus system in particular; this mode has a much lower profile than the trolley light rail system.
2. MTS transit system continues to be forced to reduce service and raise fares in response to ongoing funding shortfalls.

3. Downtown has significant competition for employment with a number of regional centers.
4. Population is dispersed throughout a wide regional area, with many downtown employees living well beyond the San Diego urban core, even outside the County.

Tuesday afternoon was led by George Hazel, examining world examples of how visions have become realities for cities. George presented “Understanding the Vision”, an enlightening talk on the necessary middle steps for turning visions into realities.

One clear theme emerging from George’s presentation, contrasted with the existing conditions in San Diego, was the need for more “exchange” space, between the employment and residential functions and transportation. High value (Exchange) space is where people interact every day; where transactions occur, where money is spent; where friends meet to shop and talk. It is the most important space that a city has as this space drives the economy of the city. The existing Downtown Community Plan provides excellent visions for San Diego, but middle steps are needed to transition the plan to a reality.

The team agreed that one key middle step might be to establish a benchmark scenario where all additional transportation needs caused by increased employment and other (residential etc.) growth in the downtown be accommodated on pedestrian, bicycle and transit, resulting in a shift from the auto based scenario to a more balanced modal share.

WEDNESDAY 23 JANUARY

Wednesday morning saw the group focus on transitioning the CCDC downtown vision into one more linked to “exchange space” and a higher profile for pedestrians, bicycles and transit as alternatives to the car. It was discussed that cities are generally comprised of 3 distinct areas, public/private land uses, transportation services and facilities, and exchange spaces. The exchange space was defined as the areas where social interaction takes place such as parks, promenades and restaurant/café terraces. The conclusions that were reached were linked back to the existing CCDC Downtown vision and its key themes:

1. Distinctive World-Class City:
2. Center of the region
3. Intense yet always livable
4. Nucleus of economic activity
5. Collection of unique, diverse neighborhoods
6. Celebration of climate and waterfront
7. Connected to context and San Diego Bay
8. Memorable, diverse and complex

Many of the ingredients exist for successfully turning the CCDC San Diego vision into reality. A document that was prepared by MRC explaining a number of parking, pedestrian, and cycling opportunities that can be considered in downtown San Diego was circulated among the workshop participants and is included in Appendix C1. The following key themes emerged during the brainstorming sessions of Wednesday morning. Notes from the meeting are included in Appendix C2.

PEDESTRIAN, BICYCLE AND TRANSIT NETWORKS

- Improved completeness for better connectivity (all neighborhoods in the network)
- High visibility networks moving people not vehicles.
- Safe and enjoyable networks
- More outside activity to promote exchange space
- Priority zone and dedicated space for pedestrians, bicycles and transit over the car
- Supporting facilities
- Contain the space given to cars to less than 50% of transportation/movement space.
- Increased transit speed, frequency, span of hours
- More circulation routes and networks.
- Stronger links to the urban core, suburbs and region.
- Early pilot projects to build interest and monitor outcomes
- Required increases in funding and a roadmap forward to the overall goal.

CARS

- All growth in work trips to be contained within transit and walking-bicycle systems
- Significant growth in other trips also to be captured by these alternative modes instead of cars.
- Minimum allocation necessary provided for car parking in downtown.
- Pricing (parking, ownership, fuel etc.) increases used to reduce attractiveness of cars
- Technology to support reduced car use and improved alternative modes in downtown.
- Divert through car trips away from downtown
- Isolate parking to fringes of downtown

STREET AND LAND-USE

- Review land-use principles to maintain character of individual villages but provide mix of dense activity to sustain attractive walk network and exchange space throughout each day (not just office hours)
- Establish streetscape manual for supply of seating, information, dining, safety, structures etc.

EVENTS

- Use special event transportation to increase the profile of transit.

Key actions were listed for each of the above themes, from which the team will assemble into a number of packages of alternatives.

The morning concluded at 11.30 a.m. with a walking tour for the team from the CCDC offices along 4th Ave to the Convention Center, returning after lunch via Market Street. This provided a first hand look for the team at a number of key downtown neighborhoods.

Following further brainstorming by the team early afternoon Wednesday, the workshop concluded with the group having an informal Open House with CCDC and city and transit agency staff to discuss our thoughts and gain further local insights. The opportunity was taken for George Hazel to present the "Understanding the Vision" presentation to those gathered.

The MRC group very much appreciates the assistance and input provided by CCDC and other local agency staff during the workshop.

Appendix C1 – Parking, Pedestrian and Cycling Overview & Ideas Bank

1 Introduction

This document provides a brief overview of parking, cycling, and pedestrian issues in downtown San Diego and presents an “Ideas Bank” of possible options that San Diego may consider or options that San Diego is employing but could expand further.

The “Ideas Bank” provides a simple summary sheet of possible enhancement measures with examples of where they have been used. It is intended to serve as a basis for discussion for a workshop to be held in January 2008.

2 Parking, Pedestrian and Cycling Overview

Parking Overview

2.1.1 Current Supply of Parking Spaces

The following outlines the current parking space supply in downtown San Diego:

- 9,800 on-street metered and unmetered parking spaces
- 34,200 spaces in public garages and surface lots
- 15,700 spaces in private garages and surface lots
- 11,000 spaces designated specifically for Petco Park

2.1.2 Parking Rates

The flat rate for parking meters established by the City of San Diego is \$1.25/hour. However, each Parking Meter District is free to set parking meter rates as they wish, with actual rates

ranging from \$.50/hour for nine hours maximum to \$1.25/hour for two hours maximum.

Parking garage rates vary depending on who owns and operates the garage. Generally, day rates north of Broadway are higher than evening rates due to the location of the Civic Center and major offices which have more daytime activity. Daily rates south of Broadway have lower daily rates and higher evening rates due to its proximity to the Gaslamp District and Petco Park, with their retail and entertainment focus.

Daily rates range from \$5 to \$10 south of Broadway to \$10-\$20 north of Broadway. Most public lots do not have in and out privileges. Some parking lots have rates in the range of under \$10/hour for the first hour and \$12-15 for up to ten hours or daily. After 5pm rates vary from \$10 flat rate to \$4/hour for the first hour, \$6 maximum. Monthly rates in private garages range from \$100 to \$200.

When Petco Park first opened at the southern end of downtown San Diego, the supply of parking designated for this venue was around 3,700 spaces. This resulted in high transit ridership. Since the opening year, the parking spaces have now grown to 11,000, with the opening of the Padres Parkade garage. Transit ridership has tended to drop off as the supply of parking has increased. Rates for Petco Park parking run from \$8 to \$15, and up to \$20 for preferred parking adjacent to the venue. Fans can also pre-purchase parking for specific garages and lots on an individual game basis at the Padres Parkade and the Tailgate Lot. Guests can guarantee a non-reserved space in the lot of their choice by purchasing parking passes.

2.1.3 Parking and TDM Requirements

Parking and transportation demand management standards are described in the Centre City Planning District Ordinance (PDO) as amended in 2007. Residential uses require one space per dwelling unit with variations dependent on the type of residential uses and income restrictions. There are also provisions for motorcycle and bicycle parking.

Non-residential use requirements vary from 1.5 spaces per 1,000 square feet of office space to 0.3 spaces per hotel room. There are also provisions for motorcycle and bicycle parking that are based on the number of vehicle stalls.

The North Embarcadero area has higher parking requirements for office, hotel, retail, and restaurant uses. Parking requirements vary from 0.5 spaces per hotel room to 5 spaces per 1,000 square feet for restaurants.

As part of the development review process, applicants of commercial and hotel projects over 50,000 square feet are required to implement a minimum amount of transportation demand management (TDM) measures.

2.1.4 Parking Studies and Policy Initiatives

Comprehensive Parking Study

In 1992, the city conducted its first comprehensive parking study. The study primarily focused on the existing supply of parking and its use, and proposed land uses for the downtown area. The study developed a number of parking spaces that would be needed to support the planned land uses. While the study did make mention of having more trips made by transit and ridershaing, the study did not outline any specific policies or strategies to achieve this. Today the study is no longer relevant because much of the land

use has changed since 1992. There has been a significant shift to residential land uses and the downtown baseball stadium at Petco Park has since been added.

There have also been neighborhood level studies done to compliment the comprehensive study. These studies also focused on a traditional type of parking supply/demand analysis, not incorporating any discussion of enhanced transit, ridesharing, and the use of alternative transportation modes.

Parking Meter District

In 1997, the City Council established the Parking Meter District Program to allow neighborhoods to better meet parking and mobility needs. Forty-five percent of parking revenues generated by each district are used for district approved efforts to address parking and access issues. This revenue source has allowed each district to increase the availability, supply, and effective use of parking for residents, visitors, and employees. Each district is also responsible for setting the number of parking meters and what the rates for each meter will be as well as setting the locations for the various types of loading zones. The downtown district was one of three districts that were created.

Residential Permit Parking

In 2002, a study was undertaken for the Cortez Hill and Little Italy neighborhoods north of the core area of downtown San Diego to evaluate the need to establish a residential permit parking program. In addition to evaluating the supply and use of available parking, the study also reviewed the residents' desire and need for permit parking, occupancy levels, parking usage, and off-street parking availability. The study concluded that the Cortez Hill and Little Italy neighborhoods both met the criteria for establishing residential permit parking areas.

Cortez Hill became the first residential permit parking area. Each business owner and resident pays an annual fee that also entitles them to visitor permits. Temporary parking permits are

also available for temporary residents and service vehicles. Similar programs are under consideration for Little Italy and East Village.

Bicycle and Pedestrian Facilities

2.1.5 Bicycle Paths

There are two primary bike paths that operate through the downtown area, the Bayshore Bikeway and the North Embarcadero bike path.

The 24-mile Bayshore Bikeway route extends from the Broadway Pier near the intersection of Broadway and Harbor Drive on the western edge of downtown, around San Diego Bay to the Coronado Ferry Landing at the intersection of 1st and B Streets in Coronado. The route extends through the cities of San Diego, National City, Chula Vista, Imperial Beach, and Coronado. The loop currently exists as a combination of segments of off-street bike paths and on-street bike lanes and routes.

Through the downtown area, the bike path starts at the San Diego Coronado Ferry Terminal, located at the Broadway Pier on North Harbor at Broadway. From this point south, the bikeway route follows the existing bicycle/pedestrian pathway network along North Harbor Drive to Seaport Village. Because of the prohibition of bicycles through Seaport Village, cyclists must proceed around Seaport Village along Harbor Drive. This segment of the Bikeway continues as an on-street Bike Route and provides access to San Diego's Gaslamp Quarter, Convention Center and Petco Park. From this point, the Bikeway Route continues south past the shipyard and naval base into National City.

On the south side of Seaport Village, a wide walkway continues along the waterfront, extending behind the Convention Center. A "bicycle lane" has been striped along the eastern edge of this wide walkway as a means of separating bicycle and pedestrian traffic. The bicycle lane is only wide enough for one-

way traffic, and is stenciled for one-way southbound traffic. This pathway connects to Convention Way at Marina Park Way.

A second bicycle path running through downtown is the Embarcadero Bayside Bike and Walking Path. The path is adjacent to San Diego Bay and runs from Spanish Landing Park just past the airport to Marina Park Way and links with the Bayshore Bicycle path at Broadway Pier.

2.1.6 Bicycle Lanes and Routes

There are no designated bicycle lanes on any streets in downtown. There are designated bike routes along:

- B Street between Pershing and 4th Avenue
- West A Street between Kettner and 4th Avenue
- 4th, 5th and 6th Streets north of B Street.

2.1.7 Pedicabs

Pedicabs are seen in most of the tourist and recreational areas in downtown south of Broadway and along the Embarcadero. While pedicabs are marketed more for tourists wanting to find a novel way to sightsee, pedicabs are also useful to local residents who may need to find an alternative to riding a taxi. The City of San Diego regulates pedicabs and separate permits are required for both the vehicle itself and for the operator and are good for one year.

2.1.8 Pedestrian

Because of the variety of land use types within the downtown area, pedestrian activity varies by specific neighborhood areas.

Within the Civic/Core and Columbia areas, peak pedestrian activity occurs during rush hours and lunchtime, due to the concentration of office workers and trolley stations in these areas.

The area in the vicinity of India Street generates pedestrian traffic during the day and evening due to retail, restaurant, and residential uses. The

area along 4th and 5th Avenues in the Gaslamp Quarter also has high concentrations of pedestrian activity at night for entertainment purposes.

Baseball games, major conventions, and special events also create high concentrations of pedestrian activity that primarily focuses itself in the area south of Broadway and east of Fourth Avenue.

[Embarcadero Bayside Walking Path](#)

The path is adjacent to San Diego Bay and runs from Spanish Landing Park to Marina Park Way.

[Park-to-Bay Link](#)

This \$30 million public-improvement project is located along Park Boulevard between C and K streets. The goal of the project is to complete a 100-year old vision connecting the two regional assets of Balboa Park and San Diego Bay. Improvements were made to the public right-of-way by creating a landscaped pedestrian promenade with parking, street trees, lighting, and public art.

In addition to the landscape improvements, the project also included the complete renovation of trolley track along Park Boulevard between C and G Streets and the renovation of the Market Street and City College stations. The City College station required the realignment of the station diagonally through the Smart Corner development.

The final project in the Park-to-Bay Link will be the completion of the Harbor Drive pedestrian bridge. The pedestrian bridge will provide a safe crossing over heavily traveled Harbor Drive and existing train and trolley tracks, also facilitating the completion of the vehicular intersection at Park Boulevard and Harbor Drive. The project has experienced major cost increases resulting in a current bid review with the hope that construction can begin in 2008.

3 Ideas Bank

The “Ideas Bank” consists of the following general categories:

Parking

- Reduced Parking Requirements
 - Reduced minimums
 - Reduced maximums
- Parking Management
 - Shared parking facilities
 - Residential permit parking
 - Preferential treatment
 - Unbundled parking
- Parking Technology
 - Payment technology
 - Availability technology
- Parking Pricing
 - Variable Rate parking pricing
 - Coordinated off-street/on-street
 - Occupancy tax
 - Cash-out
 - Credit program
 - Discounts for carpools

Pedestrian & Cycling

- Multi-Modal Planning
 - Complete streets
 - Network connectivity
 - Bike boxes
- Transit Integration
 - Improved access
- Cycling Measures
 - Shared bicycles
 - Park and ride (bike)
- Planning / Monitoring
 - “Accessibility Planning”

Parking

Parking Management

- **Shared Parking Facilities**
- **Residential Permit Parking**
- **Preferential Treatment**
- **Unbundled Parking**

Description:

- Shared parking facilities: make use of parking spaces for two or more different land uses that have different peak use characteristics (e.g. school and cinema).
- Residential parking permits restricts use of certain areas of on-street parking.
- Preferential parking treatment: can be given for on-street or off-street parking by reserving desirable locations or through preferential pricing.
- Unbundled parking: is when parking is not automatically included with a lease or purchase agreement and a separate transaction for parking occurs; usually with an added fee.

Purpose:

- Reduces the amount of land devoted to parking
- Creates more opportunities for mixed use, creative site planning and landscaping.
- Additional turnover can increase the ability to finance the facility.
- Preferential treatment for parking can support different city objectives such as increasing HOV use or promoting the use of low emission vehicles.

Examples:

- **Shared Parking:** The Montgomery County Zoning Ordinance allows for shared parking when any land or building is under the same ownership or under a joint use agreement and is used for 2 or more purposes. The uses being served by the shared parking arrangement must be within a 500 feet walking distance of the shared parking facility.
- **Shared Parking:** A review of Olympia's street, parking and development standards indicated that most land uses have more parking than currently required and recommended that developers and local governments reduce parking by joining, sharing or coordinating parking facilities. As a result, street, parking and development standards were modified to encourage cooperative or shared parking.
- **Residential Parking Permit:** Cortez Hill in San Diego became the first residential permit parking area in the city. Each business owner and resident pays an annual fee that also entitles them to visitor permits. Temporary parking permits are also available for temporary residents and service vehicles. Similar programs are under consideration for Little Italy and East Village.
- **Residential Parking Permits:** Parking in Barcelona city centre falls into three categories: 'Green zones' reserved for local residents, who pay one euro a week; 'Other green zones' limited to a one or two-hour stay, available to all, but where locals enjoy a fixed-price discount; and 'Blue zones', the parking meter areas.
- **Residential Parking Permit:** Edinburgh UK has a residential parking permit system that was expanded recently to cover most areas of the inner city. Parking is restricted to residents during business hours. Edinburgh is considering moving to a maximum of two parking permits per household with the second parking permit costing more.
- **Preferential Treatment:** The City of Seattle has a discounted carpool program with reserved on-street parking bays in desirable locations. Other incentives include preferential carpool and vanpool parking in off-street lots, guaranteed ride home programs for rideshare participants, and ride match data base programs.
- **GWL Terrein in Amsterdam** is an ecological housing development which consists of 600 housing units but only 130 satellite parking spaces. Parking is allocated by application to a waiting list. The spaces are not located within the housing area but are instead on the edge of the development, away from the town centre. The town is supported by two car club parking stations and good access to public transport.

Parking

Parking Technology

- **Payment Technology**
- **Availability Technology**

Description:

Technology can be used to enhance the efficiency of parking operations. There are a variety of measures for parking payment as well as for parking availability.

Technology for parking payment includes multi-space parking meters, credit card payment, mobile phone payment etc. Technology can be used to indicate where available parking spaces are and can take the form of electronic signs on city streets directing traffic to parking lots, signs at the entrance to parking lots showing the number of available spaces, or real-time internet/mobile map showing available spaces.

Purpose:

- Maximizes use of existing parking supply
- Managing parking supply and pricing to meet city objectives
- Reduces unnecessary traffic from users cruising to find available parking spaces

Examples:

- **Payment Technology:** In 2004, the City of Seattle began replacement of single space meters with a multi-space pay and display system. As a result, per space parking revenue with the same fee has increased 40% due to the propensity of motorists to use credit cards (62% of parking revenue) and to purchase the maximum parking period allowed.
- **Payment Technology:** The City of Vancouver has a pay for parking by phone service that is available at all 7,800 on-street parking meters. Drivers access the system by phone, providing the parking meter number and the number of minutes (up to the maximum time permitted). Drivers may extend their time or receive a time expiration warning via text message.
- **Payment Technology:** Since August 2006, UK rail users have had the option to pay for parking by mobile phone at all 63 rail station car parks along the Great Western Rail Network. The service is quick to use, avoids the need to carry coinage and passengers can "top-up" with extra time if they need to.
- **Availability Technology:** Portland International Airport, Baltimore International Airport and the Grove in Los Angeles have parking systems that use dynamic signs to communicate stall availability to motorists.
- **Availability Technology:** The City of Santa Monica has a web-based system that the user can access to examine the availability of parking.
- **Availability Technology:** Barcelona, Spain uses an intelligent automated system in its underground parking structures to efficiently managed space. It indicates spaces available and guides users to available bays using a lighting system.



Parking

Parking Pricing

- **Variable Rate Parking Pricing**
- **Coordinated Off-street/On-street**
- **Occupancy Tax**
- **Cash-out**
- **Credit Program**
- **Discounts for Carpools**

Description:

Variable Rate Pricing: The fee for either on-street or off-street parking can varied according to city objectives. Variable rate parking pricing can be used in areas with seasonal or special event parking considerations. It can also be used to maintain desired occupancy rates, or to encourage turnover in short-term parking supply.

Coordinated Off-street/On-street: Manages to the total parking supply, including pricing, to meet certain objectives.

Occupancy Tax: A tax on parking spaces.

Cash-out: Where parking is provided for employees, employees are provided with the option of receiving cash in lieu of a parking space. California law requires that cash-out be an option for certain types of employers who subsidize parking.

Credit Program: A credit program allows developers to reduce or eliminate their off-street parking requirements. Credit program funds are pooled to create public off-street parking spaces in the vicinity.

Discounts for Carpools/Low emission Vehicles: Discounts on parking can be provided to meet city objectives such as lower rates for carpools or low emission vehicles.

Purpose:

- Maximize parking resources,
- Reduce supply
- Can be used to meet city objectives

Examples

- **Variable Rate Pricing:** New York's Mid-Town Commercial Parking Pricing Program sets on-street rates for multi-space meters at \$2 for one hour, \$5 for two hours, \$9 for three hours and \$12 for four hours. Initial results from the program indicated a decrease in average parking time from about 4 to 6 hours down to 90 minutes with a corresponding reduction in occupancy rates from 120% to 85%.

- **Variable Rates:** Norwich, UK is moving forward with plans to set parking fees for residential permits based on vehicle length in order to make more efficient use of parking space and to encourage use of smaller vehicles with lower emissions. It estimates that an additional 560 spaces would be available if users switch to smaller cars. Vehicles longer than 4.45m (14.6 feet) would see a near doubling in the annual fee from £16/year to £30/year (approx. \$30 to \$60). A reduced fee of £16 (\$30) would apply to small vehicles of less than 3.92m (12.9 feet), while medium-size vehicles would pay £22/year (\$40). Hybrid or alternative fuel cars can park free of charge.

- **Coordinated Pricing:** Aspen, Colorado (1999) balances on-street and off-street parking pricing policies. Aspen changed its parking pricing structure to increase the availability of prime on-street parking (short-term customers) and increase the utilization of its off-street municipal parking structures (long-term visitors and employees).

- **Occupancy Tax:** The LA Department of Transportation is contemplating establishing a Parking Occupancy Tax that would be excised on paid parking. The revenues collected from this tax would go directly to the city's General Fund. This initiative would increase revenues available to cover increased monitoring, enforcement, and regulation of off-street parking operations.

- **Occupancy Tax:** The Greater Vancouver Transportation Authority charges a parking tax on non-residential parking. These funds are used for the expansion of roads and transit services in the region. The current rate is \$0.78 per square meter and is collected as part of the property tax bill.

- **Carpool Discounts:** The City of Seattle's Carpool connection program offers discounted parking in specially designated areas for participating carpools.

- **Cash-out:** The County of Los Angeles was one of the first major employers to offer a cash-out program to its employees. This program resulted in a decrease in solo occupant drivers and allowed the County of Los Angeles to use its excess parking for other more profitable uses.

- **Credit Program:** The city of Pasadena has created a "Parking Credit Program" that enables businesses to meet their off-street parking requirements. In 2001, it was set at \$115 per space, which is substantially lower than the cost to construct a parking stall. These lower charges allow a business to locate in a building which may not have sufficient parking to meet the higher parking requirements of that use. The intent of the City's zoning credit is to use fees to create a pool of funds to develop off-street parking.



Pedestrian & Cycling

Multi-Modal Planning

- **Complete Streets**
- **Network Connectivity**
- **Bike Boxes**

Description:

Complete Streets: is an approach to designing and constructing streets that balances or tradeoffs priority for all modes and users of road right of way.

Network Connectivity: aims to enhance travel for pedestrian and cyclist by improving network connectivity for pedestrians and cyclist and in some cases be reducing connectivity for motorized travel.

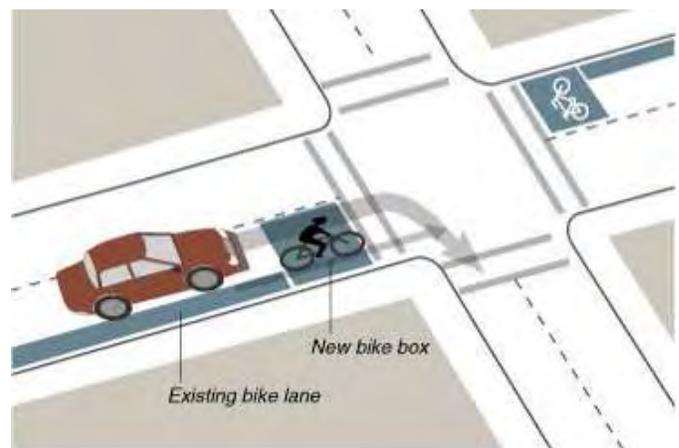
Bike Boxes: allow cyclists to wait in front of motorized traffic, and are intended to reduce the risk of "right hook" collisions.

Purpose:

- Enhances the pedestrian environment by slowing vehicles,
- Increases safety and
- Encourages street activity.

Examples:

- **Complete Streets:** The California legislature is considering a complete streets measure that requires all jurisdictions to plan roads for all travelers including transit users and disabled people. More than 50 local jurisdictions have adopted complete streets measures. The US Federal Government is getting involved by drafting legislation in both the House and Senate to require complete streets provisions. Bills are targeted for introduction in early 2008.
- **Complete Streets:** In Bordeaux, France, the transportation master plan specifies that a maximum of 50% of public space will be dedicated to cars in all future roadway construction/renovation.
- **Network Connectivity:** In the early 1960s, the city of Bremen (Germany) was divided into four sectors, or "traffic cells." Automobiles were allowed to travel within each cell, but to travel between these cells they had to use a circumferential ring road. Pedestrian, bicycle and transit vehicles would travel directly between these cells. Vehicle traffic volumes were significantly reduced and travel by other modes was significantly improved.
- **Network Connectivity:** Santa Rosa has developed east west pedestrian linkages to connect sides of the community divided by Highway 101. The pedestrian walkway project is within 2 blocks of the downtown transit mall, which serves a local and regional bus hub and is near the Santa Rosa bikeway system. The city also runs a trolley service through the area. Pedestrian and bike amenities include narrowed intersections, special pavement, pedestrian scale lighting, and bike parking.
- **Bike Boxes:** Portland Oregon plans to install bike boxes in 2008.



Pedestrian & Cycling

Transit Integration

- **Improved Access**

Description:

- Pedestrian and bicycle access to transit can be improved by removing barriers and enhancing a variety of facilities such as a mid-block pedestrian crossing, multiple accesses, connected cul-de-sacs, etc.

Purpose:

- Encourages healthy modes of transportation

Examples:

- **Improved access:** Nantes, France pursued a “**stations as plazas**” concept for its new Bus Rapid Transit corridor in 2007. A key feature of the overall design was to ensure stations were well integrated from an urban design standpoint and that each major stop was treated as a plaza. This meant the use of high quality materials and landscaping, traffic calming in the vicinity of stops and priority for pedestrians. Central to this was the idea that pedestrians access the stop on one level with **no grade change** (buses and cars go either up or down) to ensure **seamless access** to the stops for the pedestrians.



- **Improved access:** In Ottawa Canada, planning for a busway extension included consideration of how pedestrian and cyclist would access stations. Network connectivity was examined within 800 meters of a station and capital improvements for pedestrian and cycling facilities were proposed as part of the overall capital budget for the busway.
- **Improved access:** Transport for London provides an online journey planner where the user can select the modes they want to travel by and their parameters in terms of comfort or number of interchanges. The planner can show bicycle and transit “packages” by fastest journey or to minimize changes.

Pedestrian & Cycling

Cycling Measures

- Shared Bicycles
- Park and Ride (Bike)

Description:

Shared bicycles are bicycles made available for public use with or without a fee.

Purpose:

- to increase bicycle use throughout the city
- to make short distance bicycle trips simple, efficient, affordable and convenient
- Ability to track user data



Examples:

- **Shared Bicycles:** Velib is Paris' bicycle rental initiative introduced in 2007 with the intent to promote transportation options and improve the quality of life. The system is designed to make short distance bicycle trips simple, efficient, affordable and convenient. The facility is planned to have 20,000 bikes in the near future at 1,450 stations approximately 1000 feet apart throughout the downtown core. Each station has a service point and about 20 bicycles. Service points allows for payment of fees, pickup of bikes, receipts, and maps indicating nearby stations allows with bikes available and vacant bike stands. Two costs are incurred by users; a system access charge and time-based use charge. Usage rates are designed to encourage short-term use with the first 30 minutes being free, the next 30 minutes are \$1.50 and each additional 30 minutes is \$3. Stations are located on-street and take the place of on-street parking. Maintenance crews rebalance the system each day by redistributing the bikes. A current challenge is lack of available spaces at popular destinations.
- **Park and Ride (Bike):** Amsterdam has implemented various forms of the park-and-bike measure, including the Q-Park (where users can park their cars and rent a bicycle without the need for a deposit), and two facilities which both provide a combination of park-and-ride and park-and-bike services, offering users multiple options for their trip into the city centre.

Pedestrian & Cycling

Planning / Monitoring

- **“Accessibility Planning”**

Description:

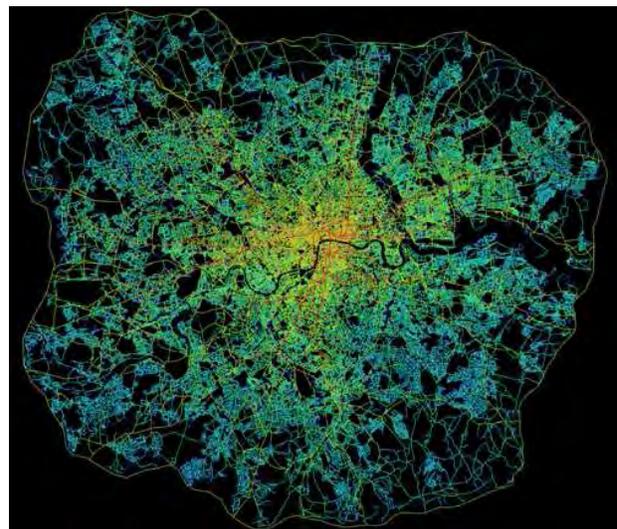
“Accessibility planning” aims to improve access for all, but particularly for disadvantaged groups or areas. The focus is on measuring the ability to access goods & services.

Purpose:

- Improve quality of access to goods and services by all modes.

Examples:

- All English local transport authorities must submit Local Transport Plans which are now required to include “accessibility” strategies & targets for “accessibility” improvements.
- In London, UK to ensure the needs of pedestrians are fully considered in new developments, Transport for London (TfL) assesses public and private development proposals to ensure designs minimize crime/security risks and provide sufficient pedestrian access.



- In order to improve urban accessibility a GIS (Geographical Information Systems) method, was designed to calculate accessibility on foot, by bicycle, by bus and by car over an entire area of a city for the standard setting user groups (children, elderly and the disabled) in Swedish transport policy. These methods of GIS data bases have been built for the municipalities of Helsingborg, Umeå, Luleå, Trelleborg, Falun, Alingsås, Nynäshamn, Säffle and Ösmo

Appendix C2 – Workshop Notes

Wednesday, January 23, 2008

In February 2006, the City of San Diego City Council established new land use and growth policies for the downtown by adopting the San Diego Downtown Community Plan, and a new zoning ordinance. Following the adoption of the plan, Save Our Forests and Ranchlands (SOFAR) challenged CCDC and the City of San Diego's compliance with the California Environmental Quality Act (CEQA). Through the course of settlement discussions, the parties agreed to work together to prepare a "Transit Alternative" to the traffic and transit elements of the 2006 Downtown Plan. A consortium of planners and engineers were assembled to critique and develop a new community plan. The guiding principles that were included at the front of the existing community plan were discussed. These guiding principles establish the vision for the downtown community, and the community plan attempts to achieve these goals. Key phrase, words, concepts were highlighted from the principles and were further elaborated.

The 8 Guiding Principles are listed as follows:

1. **A distinctive world-class downtown, reflecting San Diego's unique setting.** San Diego has evolved into a desirable place to live, work, shop, learn, and play. The Community Plan builds upon downtown's magnificent waterfront setting and its location as a transportation hub, and promotes outdoor and creative lifestyles.
2. **The center of the region.** Downtown is envisioned as the physical and symbolic heart of metropolitan San Diego. It will be the regional administrative, commercial, and cultural center, and downtown's urban form will be an integral aspect of San Diego's identity.
3. **Intense yet always livable, with substantial and diverse downtown population.** An intense downtown is central to not only fostering vibrancy, but also to curtailing regional sprawl—a key tenet of San Diego's City of Villages strategy—and minimizing growth pressures in mature neighborhoods. Increased residential population will contribute to downtown's vitality, improve economic success, and allow people to live close to work, transit, and culture.
4. **A nucleus of economic activity.** The Plan bolsters downtown's position as the regional economic and employment center by ensuring availability of employment land, and development of regional destinations. The creation of jobs easily accessed via transit, bicycle, or on foot will also further regional mobility goals.
5. **A collection of unique, diverse neighborhoods with a full complement of uses.** The organizing concept of the Community Plan is walkable neighborhoods with a mix of uses and easy access to open space, shops, services, amenities, and cultural attractions that create opportunities for true urban living.
6. **A celebration of San Diego's climate and waterfront location.** The Plan fosters vital public spaces and active street-life. Building massing has been orchestrated to ensure that sunlight reaches parks and Neighborhood Centers. Open spaces are located to enable residents to live within an easy walk of a park, and streets are designed for pedestrian comfort, walking, and lingering.
7. **A place connected to its context and to San Diego Bay.** The Plan seeks to connect downtown's neighborhoods to the waterfront with new streets and view corridors, re-establish Balboa Park's relationship to downtown, and integrate downtown with the surrounding neighborhoods. It also fosters better linkages within downtown.
8. **A memorable, diverse, and complex place.** The need for a diverse downtown is reinforced by its relatively large size – about 1,500 acres. Neighborhoods with their own unique characters and scales, distinctive streetscapes, and a tapestry of places and experiences will ensure that downtown is memorable and explorable. All of downtown will be alive with arts and culture.

A brainstorming session was held to discuss ideas and opportunities to achieve these goals. The following are key items taken out of the guiding principles that were noted for further discussion. The numbers in the brackets refer to the related guiding principles above.

- You don't need a car (4,5,6,7)
- Internal Connectivity (7)
- Centre of the Region (2,4)
- World Class (1)
 - International and National Connectivity
- Liveable (1,5,8)
- Waterfront (1,6)
- Exchange Place (1,3,5,8)
- Commercial Hub (2,4)
- Identifiable Image (2)
- Residential Hub (3)
- Regional Connectivity (4)
- Walkable Jobs (5)

During the brainstorming session, a flip chart was set up to record the key elements of the conversation. The following are the notes that were recorded during the workshop.

Internal Connectivity

- Priority Principle: prioritization of modes
 - Walk; Cycle; Transit; Freight; Car
- Principle:
 - incremental delivery
 - feedback monitoring routes
 - successful early pilots
- Pedestrian Network
 - complete (joined up)
 - visible, intuitive
 - priority at intersections
- Exchange / Movement Balance – redistributing space
- Role of Transit Stops / Interchanges – micro exchange
- Cycle network
 - complete,
 - safe,
 - prioritized,
 - own space,
 - lockers,
 - rental facilities (Velib)
- Green waves pedestrian movement
 - Short cycle length
 - Narrowing of intersections

World Class arrival points linked to downtown,

- sea,
- air,
- rail,
- road

- Create sidewalk exchange space
 - California complete street legislation
 - 50% max to cars
- Cycle advanced stop
 - Paris/Adshel Velib Downtown Scheme
- Downtown designated as a pedestrian priority zone
- Green Network of parks and walks
 - Safe, secure, well lit
- Bus Streets / Priority lanes
- Parking?
 - Prioritize short term
 - Prioritize residential
 - Penalize long term
- **Principle:** seek minimum need for parking – less cars
- Downtown square / boulevard at Santa Fe
 - Transit multi-mode hub – main arrival point

- Parking (from Daniel's paper)
 - Technology
 - Standards
 - Unbundling
 - Innovative pricing
- City / Downtown Mobility Card (smartcard)
 - GPS/Transit/car club/parking/security (Oyster / Octopus?)
 - Loyalty scheme – 2 for 1 meal deals / free off peak parking
- City / Downtown Car Share Scheme
 - 1-2 year free membership with each new house
 - Dedicated spaces
- All local mixed use centres & main activity area (Gas Lamp, Little Italy, Waterfront) all accessible by bike, walk, transit
- Need to set framework of land use principles
- Streetscape manual for downtown

- Process
 - Land use / Liveability
 - Urban design / streetscape
 - Transport / connectivity
 } Principles
- Explain the staging / incremental process -> how can the downtown achieve the vision of community plan
- Mixed use areas at all levels
 - All day activity
 - Density
- Support the character of the individual “villages”
- “Villages” = mixed use
- Encourage street activities – eating

- **Principle** – All Residents can walk to convenience shop ->neighbourhood centres
- All principles traced back to how it helps transit and the economy!
 - Evidence base – case studies

- Alternatives provided as an alternative to short trips by car
- Primary Schools downtown?
- Plan for mixed demography – singles / families?
- Car trips
 - Destination downtown trips
 - Dedicated routes
 - Discourage through trips
 - Fringe parking – Park n Ride / Park n Walk
 - Set a target car space ratio

- Transit to be iconic – both vehicle and infrastructure
 - Build on what is there
- Optimize consistency of image
- Look at Santa Barbara Electric Bus
 - Neighbourhood / downtown links
 - Social thing to do / environmentally good
- Hierarchy of issues for plan presentation
 - Be specific with what is critical
- Transit Technology – real time passenger information / GPS / AVL
- Integrated Traffic / Transit / Trolley Control Centre

- Two trolleys through CBD
 - Will need to address the “Transfer” scenario
 - Ex. Both trolleys along waterfront, shuttle through core
- Why relocate trolley from C?
 - Strengthen Trolley in CBD
 - C needs total rehab
 - What is the threshold capacity of trolley on C

- Stations
 - Seating to help create “place”
 - Iconic design
 - Highly maintained / visible / safety
 - Area maps
 - Kiosk program for integrated mode
- Fare Policy
 - For downtown and regionally
 - Simplicity of Fare design
- Advanced use of AVL for real service control
- netBI
- Ped / Bike / Transit as an integrated mode

- Trip Planning
 - Special event management
 - Moving people , not vehicles
 - If you do not do it, you need to build 2 more I-5's
- Great Streets
 - marketable
 - “Greenways” e.g. Vancouver
- Environmental Advantages

- Noise
 - Air Quality
-

- Sustainable Transport
 - environmental awareness
 - spec out low to zero emissions transit vehicles (e.g. exhaust / noise) compatible with “Exchange Spaces”
 - Wheel / rail interface squeal – minimize
 - Hybrid Vehicles or electric powered in core
 - Perhaps don’t spec power-focus on emmissions & quiet. Compatible with people / exchange place
 - Funding
 - parking surcharge,
 - Transnet
 - Dedicated to downtown issues
 - Governance
 - City Council Leadership – they will need a road map, early successes.
 - Mobility Nodes / Hubs
-

- Need to have a discussion on innovative funding
 - Values capture / landuplift
 - Kick start with seed money – e.g. quick start / quick wins then longer term
 - Sustainable Development / transport
 - Reduction of GHG’s
 - Liveability means this is the place you want to be at
 - Focus / recognize the trip not taken
 - Freight / Delivery infrastructure
-

Regional Connectivity

- Mode share targets by corridor based on no road expansion
 - Links to terminals
 - Air
 - Cruise ship
 - Santa Fe
 - Balboa Park
-

Scenarios

The current trend / auto scenario – to demonstrate how bad it will be “the cascading impacts”

Appendix D

Workshop #2 Summary Report

Appendix D – Workshop #2 Summary Report

Introduction **D-1**

Tuesday 18 March **D-1**

Presentation by George Hazel **D-1**

TMD Presentation on Transportation Impacts **D-1**

Working Discussion of Alternative Development & Analysis Memo **D-3**

Wednesday 19 March **D-4**

Appendix D1 – Workshop Agenda **D-5**

Appendix D2 – George Hazel’s Presentation **D-6**

Appendix D3 – TMD’s Presentation **D-24**

Appendix D4 – Alternative Development & Analysis Memo **D-42**

Appendix D5 – Workshop Summary Presentation **D-57**



INTRODUCTION

The McCormick Rankin team assembled in San Diego for a second workshop for the CCDC (Centre City Development Corporation) Downtown Transit Alternative Plan, conducted Tuesday 18th and Wednesday 19th of March 2008. This workshop was a follow up to the January brainstorming workshop. Its purpose was to discuss the work that has been done to date, as well as further progress the study through working conversations.

Attendees included:

- Ken Gosselin, President, McCormick Rankin US
- Sean Rathwell, Project Manager, McCormick Rankin US
- George Hazel, Managing Director, McCormick Rankin McLean Hazel
- Neil Cagney, Managing Director, McCormick Rankin Cagney
- John Bonsall, McCormick Rankin US
- Tom Middlebrook, McCormick Rankin US
- Russ Chisholm, President, Transportation Management and Design
- Joe Forgiarini, Senior Manager, Transportation Management and Design
- Paul McGregor, Senior Associate, Transportation Management and Design
- Mark Peterson, Transportation Group Director, Wilson & Company (CCDC on-call transportation planning consultant)

The workshop agenda is included in Appendix D1.

Tuesday included a number of presentations and discussion sessions contributing to the development of the downtown vision. Wednesday was spent preparing a presentation with all the key elements to the plan. This report documents the discussions from the March workshop session.

TUESDAY 18 MARCH

Presentation by George Hazel

The morning began with a breakfast meeting and included a short presentation by George Hazel (included as Appendix D2).

TMD Presentation on Transportation Impacts

Transportation Management and Design Inc. staff presented a summary of the expected transportation impacts associated with the Downtown Community Plan, as analyzed by Wilson and Company (EIR, 2005). The following is a summary of key points from the presentation (included as Appendix D3).

Development:

Substantial increases in downtown development are expected by plan build out:

- 264% increase in residential units
- 127% increase in office space
- 128% increase in retail space
- 127% increase in hotel rooms

In response to this development, vehicle trips are expected to grow by 112-113% (peak, daily) with even higher growth in person trips.

Transportation Mode Shares:

Mode shares for transit are expected to climb:

- Peak: from 8% to over 9%
- Daily: from 4% to nearly 6%

This growth in transit ridership will be partly absorbed in the existing 40% spare capacity and also in planned projects such as the Mid-Coast Trolley, extensions of the Green Line to downtown, the I-15 BRT, improved frequency for Coaster and Trolley services and new downtown shuttles. Options for a transit mall on C Street (BRT and Trolley) are also being considered.

Mode shares for non-motorized trips also expected to increase:

- Peak: from 14% to over 20%
- Daily: from 15% to over 20%

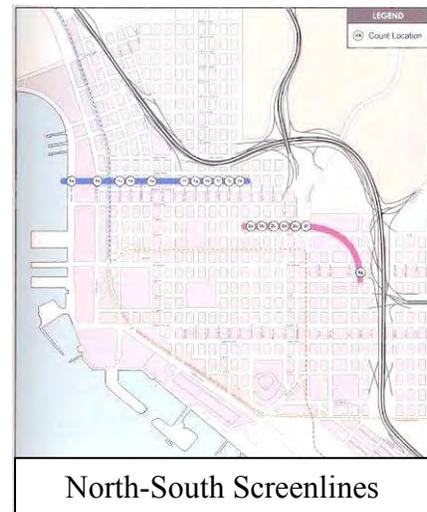
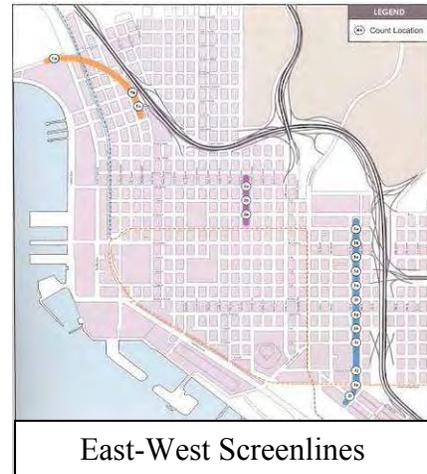
This mode receives more attention in terms of development of Pedestrian Priority Zones and a system of downtown bikeways. These trips increase by over 200,000.

Overall, the plan assumes that 33% of trip growth is to be absorbed by transit and non-motorized alternatives. While mode share for autos decreases, there is still a significant increase in auto trips (+1 million daily). Even the “No Plan” option sees increases of 0.5 million daily vehicle trips.

There are over 200,000 daily movements currently at each of the east-west and north-south screenlines. This will increase to over 380,000 at the east-west screenlines and almost 350,000 for the north-south screenlines.

Road Conditions

A new hierarchy of streets is also suggested, including Boulevards, Green Streets, Residential Streets, Main Streets and Multi-Function Streets. Some closures of streets as well as reverting some to 2-way operation are planned. However, it is assumed that no significant improvements to freeways and their on/off ramps can or will occur.



Currently only up to 3 of 13 freeway on or off ramps experience LOS F conditions (severe delays, unacceptable to motorists).

Under the plan, all segments of the I-5 and final segments of both SR-94 and SR-163 will experience LOS F delays in one or both peaks. 8 am peak and 11 pm peak on ramps experience LOS F. These impacts are similar to those of the No Project.

Only 3 of 127 existing downtown intersections experience LOS F in one peak. With the plan, downtown signalized intersections increase to 275 (from 127); of which 62 are expected to experience LOS F in one or both peaks. 50 of these can be mitigated through the addition of turning lanes at the expense of on-street parking.

Parking

Future new parking is assumed to be more restrictively supplied compared to existing parking supply, based on planned new planning ordinances.

Demand for parking is estimated to increase by 100,000 spaces with the plan, but supply is estimated to increase by only 65,000, leaving a shortage of around 35,000 spaces. This shortfall may be addressed through additional private parking and other initiatives such as more timed meters and fringe or remote parking coordinated with transit services.

Summary

It is clear that while the planned developments for Center City San Diego are worthwhile, the road infrastructure is completely inadequate to meet the demands that development will place on it. Further, it is unreasonable to expect this road network can be expanded to accommodate the growth.

Non-motorized and transit options offer readily expandable options to meet demand for downtown travel, a location typically a stronghold for transit given the condensed area for development.

Working Discussion of Alternative Development & Analysis Memo

An alternative development and analysis memo was prepared discussing the implications of 3 possible transportation scenarios for downtown San Diego was circulated among the team for discussion. The possible scenarios being considered were as follows:

1. Endorse the *Road Expansion Strategy* implications of the Regional Transportation Plan (RTP) and Downtown Community Plan and accept the construction impact of major new road capacity into the downtown.
2. Adopt a *Low Growth Strategy*, add no new road capacity and make minor improvements to the existing transit service as per the RTP. Modify the current balance between movement and exchange space where this can be done with little or no real impact on the auto level of service and accept only modest increases in population and employment.
3. Recognize that the land use and quality of life goals of the Downtown Community Plan can only be realized by accepting the need to rebalance the auto commuting in and out of the downtown with travel by transit, bicycle and pedestrians and improvement in people space in conjunction with a *Complete Mobility Strategy*.

Revisions to the memo were undertaken after the workshop to include elements that were discussed and developed during the workshop discussion. The revised memo is included in Appendix D4.

WEDNESDAY 19 MARCH

A presentation was prepared by the workshop team summarizing the major elements of the San Diego Downtown Transit Alternative Plan and summarizing the results of the workshop session. It discusses the elements of a city that are required to create a “world class” downtown destination with particular application to San Diego. The presentation is included in Appendix D5.

Appendix D1 – Workshop Agenda

San Diego Downtown Transit Alternative Plan

Alternative Development Workshop

Agenda

March 17, 2008

Arrival & Individual Downtown Field Investigation

March 18, 2008

- | | |
|---------------|--------------------------------------------------------------------------------------|
| 07:30 – 09:00 | Breakfast Meeting with CCDC Executive
Fifteen Minute Presentation by George Hazel |
| 09:00 – 09:15 | Introduction, Goals for the Next Two Days |
| 09:15 – 11:00 | Review Analysis of Alternatives |
| 11:00 – 12:00 | Discussion of Alternatives |
| 12:00 – 13:00 | Lunch |
| 13:00 – 17:00 | Discussion of Alternatives, Identification of Initial Preferred Alternative Plan |

March 19, 2008

- | | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 08:30 – 12:00 | Refinement & Development of Preferred Alternative Plan |
| 12:00 – 13:00 | Lunch |
| 13:00 – 15:30 | Final Refinement of Preferred Alternative Plan
Preparation of Brief Presentation for Reception |
| 15:30 – 17:00 | Reception with invited technical & executive staff from agencies
Presentation of Refined Preferred Alternative Plan & Discussion |
| 17:00 – 17:30 | Discussion and Confirmation of Next Steps |



Making Cities Work

Prof. George Hazel OBE

San Diego

March 2008

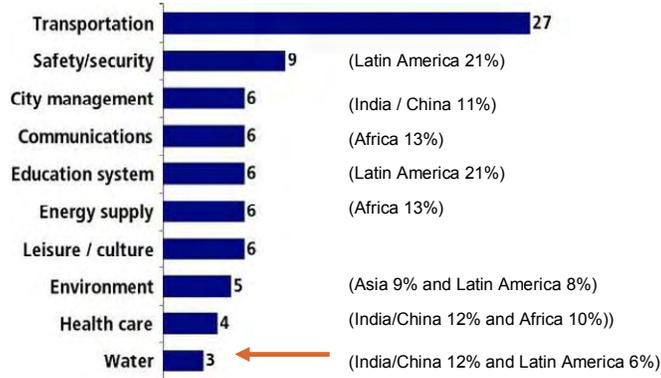


Survey of Megacity Officials and Influentials (n=522 across 25 cities during Oct./Nov. 2006)



Transportation Seen as Major Driver of City Competitiveness

Importance for Economic Attractiveness



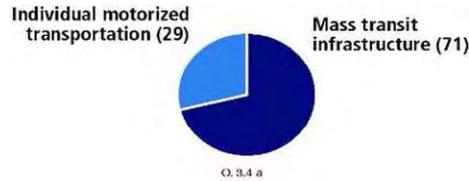
• In the understandable quest for inward investment, water loses out



Environment Matters . . .

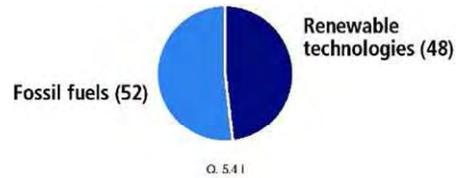
Mass Transit is the Priority

Predicted by Transport Experts



Strong Role for Renewables

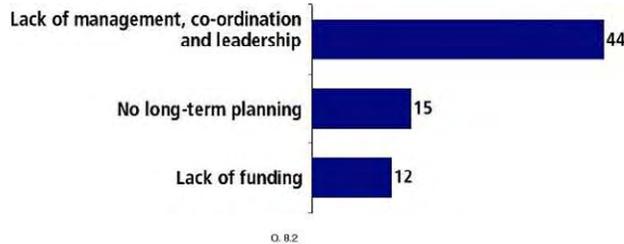
Predicted by Electricity Experts



It's Not All About Money, it's About Management

Reasons for Problems City Managers Have to Face

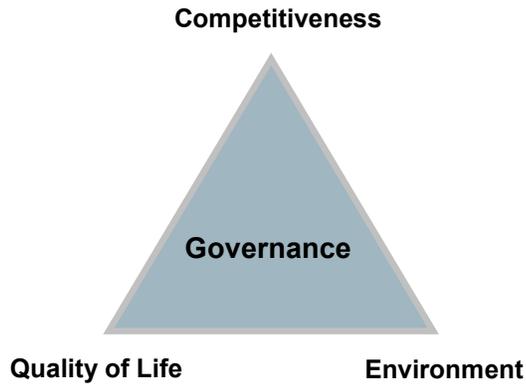
Unprompted Mentions of Knowledgeable Stakeholders (%)



- Political boundaries and silo-based thinking get in the way of integrated solutions to infrastructure challenges in metro areas



The Triangle for Success?
Achieving holistic solutions that are more than just infrastructure



The basic principles of making cities work

**The right vision and the
seven deadly wins**



The Right Vision

Rooted in economic environmental and quality of life objectives



Policy Audit Table Example

Economic Objective	Sub-objectives	Specific Objective	Strategic Transport Contribution	Specific Transport Contribution Impact	
Supporting Sustainable Economic Development by improving public transport and managing traffic congestion	Ensure the development of London as a global business centre	Support London's financial and business services sector as its chief engine of economic growth and jobs creation	Enhance international connectivity to major business destinations	Fast and reliable PT access to Heathrow Managed congestion to ensure reliable road connections to Heathrow Access to international rail (St. Pancras/Stratford)	
			Enhance access to key business centres	Enhance PT access and reliability of service to Central Activity Zone	
			Ensure high quality urban spaces in CAZ and Canary Wharf	Enhance PT access to Canary Wharf/Isle of Dogs Reduce impact of vehicular traffic High quality design and positive contribution of transport schemes to urban realm Improve local air quality	
			Support flexible work/lifestyle	Expand remote work options	
			Enhance London's world, European and national role through attracting industries and tourism	Support industries that require London location (logistics, waste mgmt. Recycling, transport)	Support the provision of strategic Industrial Locations Managed congestion on access routes to Strategic Locations Public Transport access to SIL Access to ports
			Support key sporting venues/exhibitions	Access to key sporting/exhibition venues	PT access to key sporting/exhibition sites
	Foster improved, sustainable and mutually beneficial economic relationships with neighbouring regions	Sustain the expansion of retail, leisure and cultural industries through transport provision	Strengthen the West End as a global shopping destination by providing high quality environment and access opportunities	High quality PT access to west end Improved Urban Realm/Environment for walking/shopping	
			Support the night-time economy	PT access to night time economy areas Improved personal safety	
			Enhanced sustainable access to/from London tourism gateways	PT access to London airports PT to national/international rail links	
			Enhance connectivity with 'core cities' via sustainable modes	PT access to national rail links (Paddington, Kings Cross/St. Pancras, Euston)	
			Enhance external regional connectivity via sustainable modes	Enhanced and reliable journeys connecting growth corridors PT access to regional rail links (Waterloo, Liverpool St, London Bridge, Charing Cross)	
			Support an urban renaissance	Higher density and intensification leading to a high quality, compact and secure city	Supporting town centres with public transport, improved facilities for walking and cycling. Managed traffic congestion within town centres Enhanced Urban Realm through traffic

		11						
Profiles – Example	Specific Transport Contribution Impact	1	2	3	4	5	6	7
		Fast and reliable PT access to Heathrow	✓	✓	○	○	✓	✓
	Managed congestion to ensure reliable road connections to Heathrow	○	○	○	○	○	○	○
	Access to international rail (St. Pancras/Stratford)	✓	✓	✓✓	○	○	✓	✓
	Enhance PT access and reliability of service to Central Activity Zone	✓	✓	○	○	✓✓	✓	✓
	Enhance PT access to Canary Wharf/Isle of Dogs	✓	✓	○	○	✓✓	✓	✓
	Reduce impact of vehicular traffic	○	○	○	○	✓	○	○
	High quality design and positive contribution of transport schemes to urban realm	○	○	○	○	○	○	○
	Improve local air quality	○	○	○	○	✓	✓	○
	Expand remote work options	○	○	○	○	○	○	○
	Managed congestion on access routes to Strategic Locations	○	○	○	○	○	○	○
	Public Transport access to SIL	✓✓	○	○	○	✓✓	✓✓	✓
	Access to ports	○	○	✓✓	○	○	○	○
	PT access to key sporting/exhibition sites	○	○	○	○	○	○	○
	High quality PT access to west end	✓	○	○	✓	✓	✓	✓
	Improved Urban Realm/Environment for walking/shopping	○	○	○	○	○	○	○
	PT access to night time economy areas	✓✓	✓	○	○	✓✓	✓✓	✓
	Improved personal safety	○	○	○	○	○	○	○
	PT access to London airports	✓	✓	○	✓	✓	✓	✓
	PT to national/international rail links	✓	✓	✓✓	○	✓	✓	✓
	PT access to national rail links (Paddington, Kings Cross/St. Pancras, Euston)	✓	✓✓	✓✓	○	✓	✓	✓
	Enhanced and reliable journeys connecting growth corridors	○	✓✓	✓	○	○	○	✓
	PT access to regional rail links (Waterloo, Liverpool St, London Bridge, Charing Cross)	✓	○	✓✓	○	○	✓	✓
	Enhanced PT connectivity to town centres	✓✓	○	○	✓	✓	✓✓	✓
	Improved Walking and Cycling within town	✓	○	○	○	○	○	○

		12						
The basic principles of making cities work								
<p>The right vision and the seven deadly wins</p>								
								

Win 1

**Transport is about people and goods,
not vehicles . . .**

Action - define what kind of city you want

- Mobility / connectivity is about what people and businesses need to do, where they need to be and how they get there
- Aims relate to economic, environmental and quality of life factors – not transport measures



Win 2

The City is a Place of Exchange

Action – maximise exchange space

- Royal Mile, Edinburgh
- Helsinki, Finland
- Copenhagen



Win 2

- Edinburgh, Scotland



Win 2

- Helsinki, Finland



Win 2

- Copenhagen, Denmark



Win 3

**The City is a Place of Movement and Connectivity
(people & goods)**

**Action – maximise movement and connectivity
but minimise movement space**

- Edinburgh, Scotland



Win 3

- Edinburgh, Scotland



Win 4

The City is a Place of Chairs

Action – maximise places to sit

- Paris, France
- Helsinki, Finland
- Salamanca, Spain
- Unusual Chairs



Win 4

- Paris, France



Win 4

- Helsinki, Finland



Win 4

- Salamanca, Spain



Win 4

- Unusual Chairs



Win 5

The City is a place to enjoy

Action – create people places

- Brisbane, Australia
- Vancouver, Canada



Win 5

- Brisbane, Australia



Win 5

- Vancouver, Canada



Win 6

The City is defined by its arrival points

Action – create great arrival experiences

- Venice, Italy
- Yokohama, Japan
- Salamanca, Spain
- Oslo, Norway
- Gothenburg, Sweden



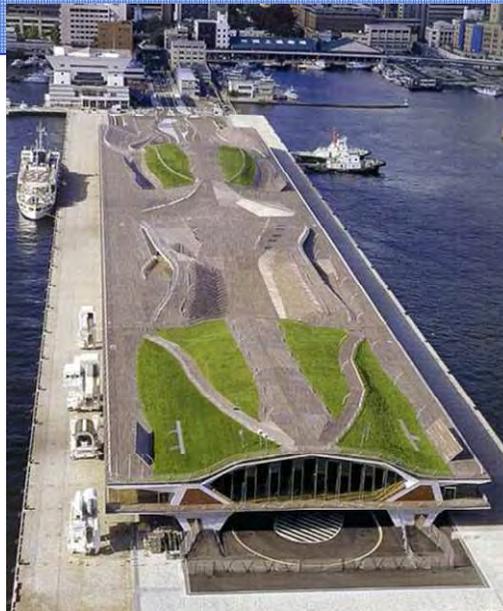
Win 6

- Venice, Italy



Win 6

- Yokohama, Japan



Win 6

- Salamanca, Spain



Win 6

- Oslo, Norway



Win 6

- Gothenburg, Sweden



Win 7

The City is a complex system of interactions

Action – Get the Governance right

Build greater understanding of city dynamics

- Integrate policy thinking – land use, economy, environment, social inclusion and quality of life
- Understand interdependencies and model them
- Embrace change

Develop new Governance and delivery vehicles

- Develop an integrated vision and plan
- Develop a delivery and funding plan
- Test the plan against the “Sevens Deadly Wins” !

Bridge the objectives gap:

- Linking policy and objectives to projects through prioritisation



San Diego, March 2008

You see things and say “why ?” But I dream things that never were; and I say “why not ?”

George Bernard Shaw

A Presentation by
Prof. George Hazel OBE





San Diego Downtown Community Plan Transportation Impacts Summary

Centre City
Development
Corporation

**WILSON
& COMPANY**

March 10, 2008



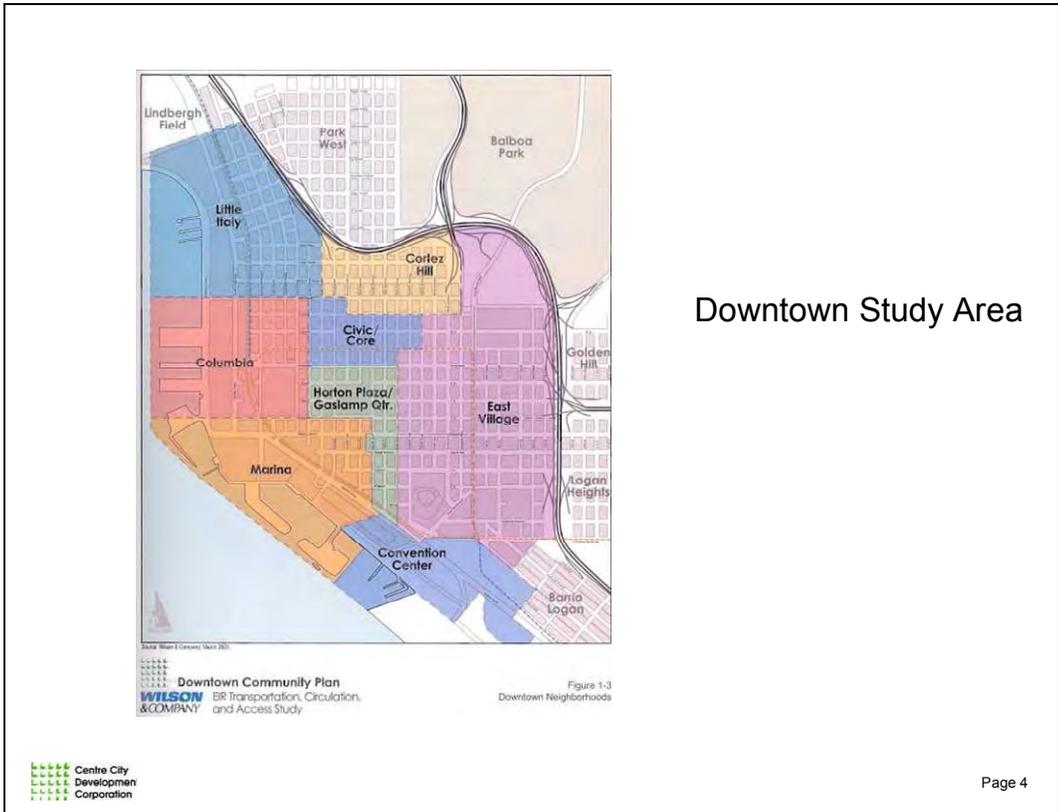
Overview

Information from Draft Environmental Impact Review for the San Diego Downtown Community Plan completed by Wilson & Company in July 2005

1. Downtown Community Plan Transportation System
2. San Diego Center City Transit Service
3. San Diego Center City Non-Motorized Transport
4. San Diego Center City Auto Transportation
5. San Diego Center City Parking

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Page 2



Center City Activity and Trips

- Substantial increases in downtown activity over Plan Build-Out Period
 - Residential development particularly strong; almost 40,000 units to be added (264% increase)
 - Office and retail space both more than double
 - Downtown employment figures not quoted but growth expected to be over 50,000 (from 75,000 to over 125,000 - SANDAG)
- Person and vehicle trips more than double

Land Use	Year 2000	Proposed	Change
Residential (units)	14,600	53,100	264%
Office (sq. ft.)	13,144,000	29,821,100	127%
Retail (sq. ft.)	2,658,000	6,070,000	128%
Hotel Rooms	8,800	20,000	127%

Land Use	Year 2000 Person Trips	Proposed Person Trips	Change
Residential	185,970	479,780	158%
Non-Residential	1,040,490	2,226,240	114%
Total	1,226,460	2,706,020	121%

Vehicle Trips	Year 2000	Proposed	Change
Peak Periods	242,780	513,740	112%
Daily	727,335	1,546,470	113%

Trip Mode Shares

- Mode share for transit trips increases
 - Peak up from 8 to over 9 percent (over 50,000 extra rides)
 - Daily up from over 4 to nearly 6 percent (almost 100,000 extra trips)

Current peak hour/direction capacity only uses 60% of available capacity

- Mode share for non-motorized trips increases
 - Peak up from 14 to almost 20 percent (over 125,000 extra trips)
 - Daily up from over 15 to over 20 percent (over 370,00 extra trips)

One fifth of all trips expected to be non-motorized

- Mode share for auto trips decreases
 - Peak down 78 to under 71 percent
 - Daily down 80 to 74 percent
 - SOV peak and daily mode shares both decline by around 5 percent while carpool mode share declines slightly (1-2 percent) in both peak and all day.

Total auto trips still increase by 340,000 peak; by over 1 million daily

Trip Mode Shares

- Plan assumes 33 percent of peak and daily trip growth absorbed by transit and non-motorized service, with the remaining 66 percent being met by auto usage.
- No Project scenario delivers nearly 900,000 extra person trips and 500,000 more vehicle trips per day (72% increase compared with 112% for Project)
- Internal work trips increase by over 30,000 and increase share of overall work trips by nearly 10 percent.
- External work trips still dominate (over 85%) and increase by over 100,000 per day

Trip Mode	Peak Existing	% Peak Existing	Peak Proposed	% Peak Proposed	Daily Existing	% Daily	Daily Proposed	% Daily Proposed
SOV	203,400	51.9	421,640	45.9	609,100	49.6	1,207,230	44.6
Carpool	101,000	25.8	227,180	24.9	371,600	30.2	783,740	29.0
Transit	30,900	7.9	86,440	9.4	53,600	4.3	151,610	5.6
Non-Motor	56,100	14.3	181,880	19.8	192,200	15.6	563,440	20.8
Total	391,400	100.0	919,140	100.0	1,226,500	100	2,706,020	100.0

Daily Trip Generation	Proposed Plan	No Project	Difference	% Increase
Person Trips	2,706,020	2,118,030	587,990	28
Vehicle Trips	1,546,470	1,248,440	298,030	24

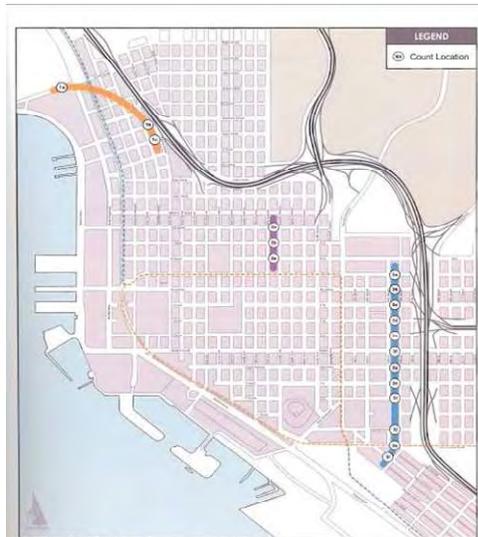
Work Trips	Existing	Percent	Proposed	Percent
Internal	7,050	5.3	38,100	14.4
External	125,600	94.7	227,700	85.6
Total	132,650	100.0	265,800	100.0

Existing Non-Motorized Transportation

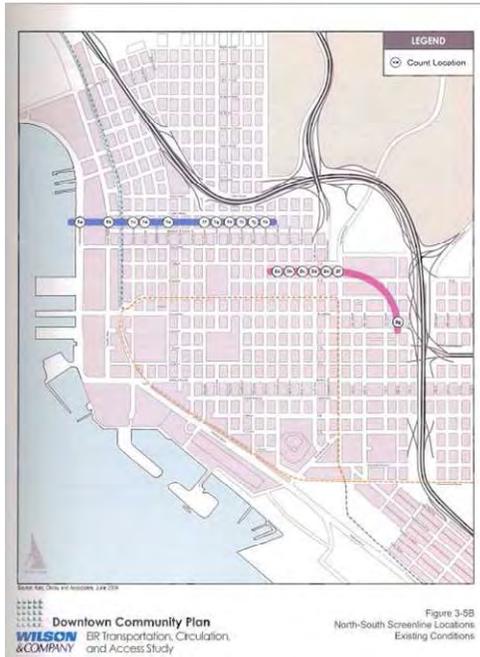
- Key existing pedestrian zones at Horton Plaza, B/C Streets, Gaslamp Quarter and Broadway.
- Events at Petco Park and the Convention Center generate significant pedestrian activity south of Broadway.
- Commercial growth will increase pedestrian traffic in existing key zones
- Residential development will expand high pedestrian activity to new areas
- Need for enhanced sidewalks on Broadway (Main Street) as well as Park Boulevard as key pedestrian links
- Bikes currently use existing road network with no designated routes or facilities (excepting Bayshore and North Embarcadero)
- New residential development will bring with it additional bike trips for commuting and recreation
- Pedicabs frequent tourist and visitor areas such as Seaport Village, Convention Center, Gaslamp Quarter, Ballpark, major hotels

Existing Roadway Network and Performance

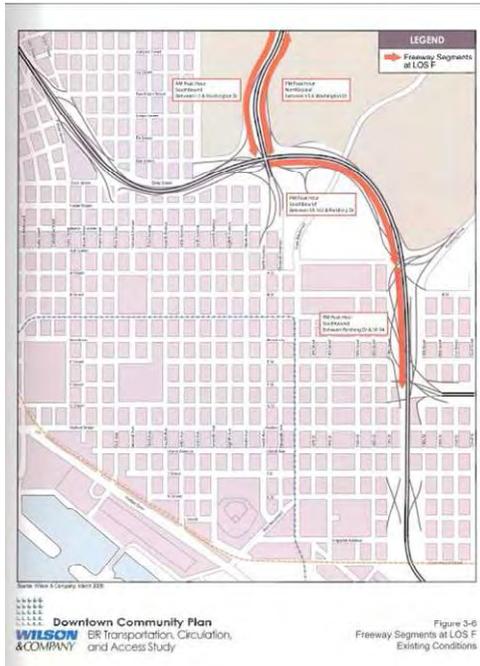
- **Vehicle Volumes**
 - 206,800 daily movements at East-West screenlines (Harbor Drive, Columbia & 15th Streets)
 - 219,720 daily movements at North-South screenlines (Cedar & A Streets)
- **Freeways**
 - Currently Level of Service (LOS) F operation (severe delays, unacceptable to most drivers) on I-5 curves (southbound PM peak); SR-163 inbound AM peak, outbound PM peak
 - Only 2 of 13 downtown on-ramps and 1 AM/3 PM of 12 off-ramps currently at LOS F.
- **Street Intersections**
 - Existing system of 127 signalized intersections downtown, all but 12 linked, with 70 second cycles. Good progression generally.
 - All intersections operate at LOS C or better in AM peak; three operate at LOS F in PM peak
 - Generally LOS F intersections result from freeway access issues (limited capacity, outdated ramp designs)



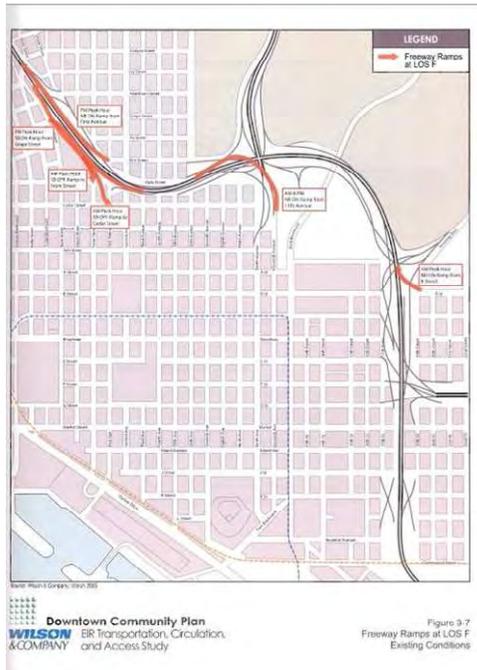
East-West
Screenline Locations



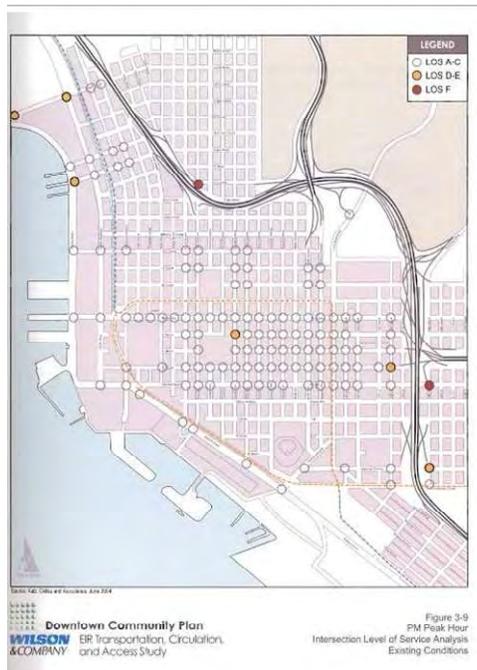
North-South Screenline Locations



Existing Freeway Segments at LOS F



Existing Freeway Ramps at LOS F



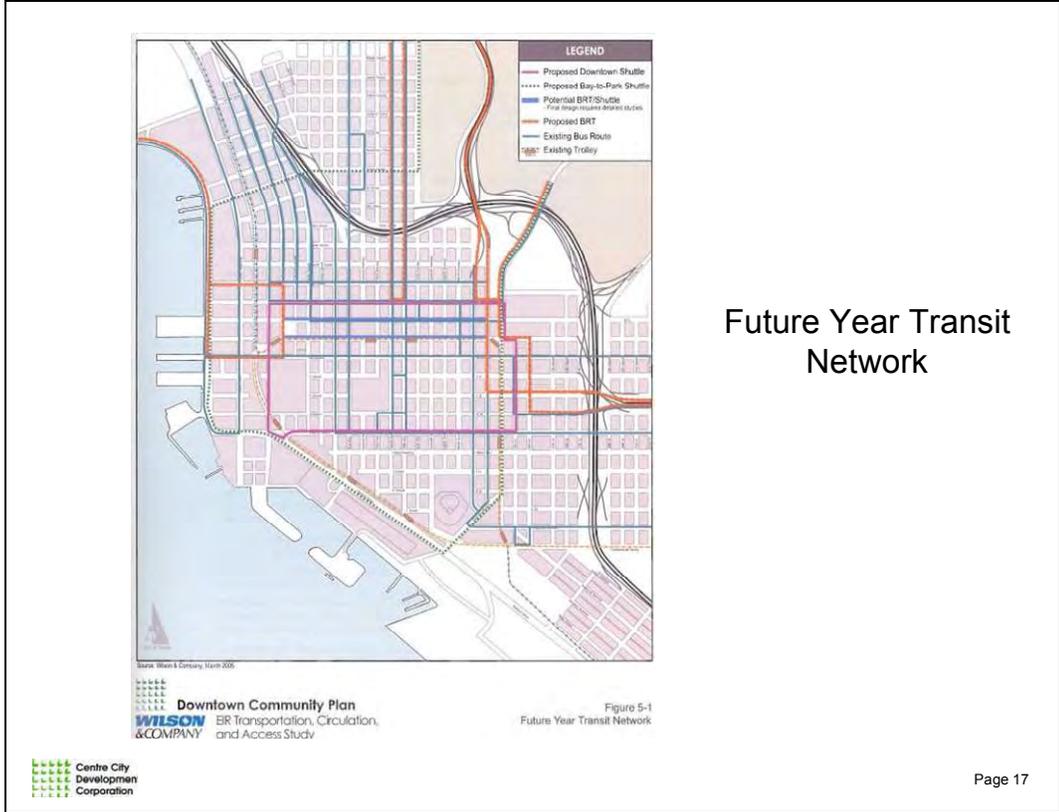
Existing Intersection LOS



Transit Plan

- Assumed Improvements
 - Extension of Trolley service to UCSD and University Towne Center (Mid-Coast); extend Green Line Trolley to downtown
 - More frequent Trolley and Coaster rail services and improved Local and Express bus service levels
 - Bus Rapid Transit lines linking downtown with I-15 and El Cajon Boulevard (Mid-Cities)
 - Downtown shuttles connecting neighborhoods (Intra-downtown and Bay to Park)
 - Improved/new transit stations and centers ensuring inviting and positive environment plus street improvements to accommodate transit
 - Real-time information and signage improvements throughout downtown
- Additional Impacts
 - BRT may take dedicate downtown lane space in peak periods (replacing parking)
 - C Street may be fully devoted to transit with four car operation (to meet future demand), possibly requiring closure of Second and Seventh Avenues to through traffic.
 - Increase in delays at rail crossings from increased Trolley service.

No significant impacts expected from transit capacity and service level changes.



Centre City Transit Ridership

Trip Type	Existing Transit Trips	Existing Total Trips	Existing % on Transit	Proposed Transit Trips	Proposed Total Person	Proposed % on Transit	No Project Transit Trips	Difference
Daily Work Trips	27,800	132,650	20.9	64,300	265,800	24.2	54,100	10,200
Peak Periods	30,900	391,400	7.9	84,100	894,100	9.4	65,500	18,600
Total Daily	53,550	1,226,460	4.3	151,600	2,706,000	5.6	117,000	34,600

- Highlights of Expected Changes
 - Work trip transit mode share expected to grow 21 to 24 percent (up 36,500 from existing, 10,200 more than no build)
 - Peak period transit trips expected to increase from 8 to over 9 percent (up 53,200 from existing, 18,600 more than no build)
 - Total daily transit trips expected to increase from over 4 to nearly 6 percent (up 98,000, 34,600 more than no build)
 - Full build-out of plan will have much lower excess capacity (18,960 of 20,800 available trips) bus service levels

Proposed growth in transit usage is substantially similar to the no build option.



SECTION 3

**San Diego Center City
Non-Motorized Transport**

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Non-Motorized Transportation

• **Pedestrians**

- Develop cohesive and attractive pedestrian network within downtown
- Establish Pedestrian Priority Zones with streetscape improvements (widen sidewalks, lengthen walk times, all walks, bulbouts, enhanced lighting and signage)
- Emphasis on safe crossings for pedestrians (signalized intersections doubled etc.)
- Accept lower auto levels of service. Control speeds on freeway access couplets with traffic calming (1st/2nd, 10th/11th, F/G, 4th/5th)
- Facilitate development of mixed-use neighborhoods, with open spaces, retail and services walkable from residential developments

• **Bicycling**

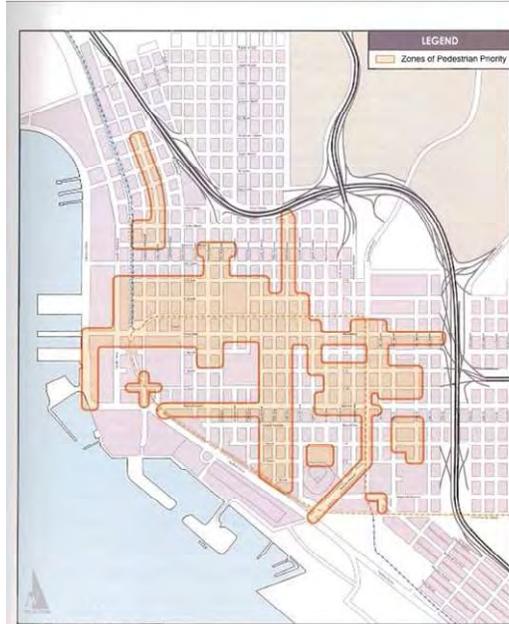
- Create system of downtown bikeways with links to regional bikeways (Bayshore Bikeway & N Embarcadero)
- Require bike facilities at all residential and multi-tenant retail and office projects
- Provide pedicab loading zones; minimize conflicts with pedestrians and vehicles.

Non-motorized trips increase about 200 percent with plan

Non-Motor Trips	Year 2005	Total Trips 2005	Mode Share	Proposed	Total Trips Proposed	Mode Share	% Increase	No Project	% Increase
Peak Periods	56,100	391,400	14.3%	176,900	894,100	19.8%	215%	123,500	120%
Daily	192,240	1,226,460	15.6%	563,400	2,706,000	20.8%	193%	403,900	110%

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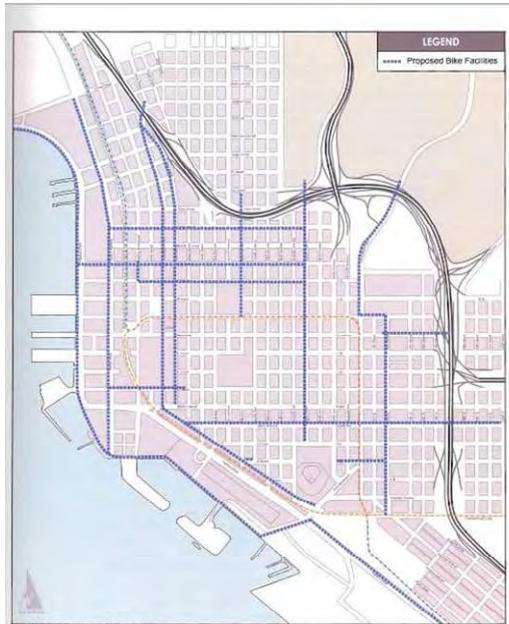




Source: CCDC, City of San Diego, Contract No. 2005-0001
Downtown Community Plan
WILSON & COMPANY ER Transportation, Circulation, and Access Study
Figure 6-1
Pedestrian Priority Zones

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Development
Corporation

Proposed Pedestrian Priority Zones



Source: CCDC, City of San Diego, Contract No. 2005-0001
Downtown Community Plan
WILSON & COMPANY ER Transportation, Circulation, and Access Study
Figure 6-2
Proposed Downtown Bike Facilities

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Corporation

Proposed Bike Facilities



SECTION 4

San Diego Center City Auto Transport

Proposed Roadway Network

- Plan proposes replacing existing hierarchy of roadways with the following:
 - **Boulevards** access for pedestrians and vehicles to commercial uses; high volumes, moderate speeds
 - **Green Streets** connect parks and other downtown amenities (waterfront, Balboa Park)
 - **Residential Streets** traverse neighborhoods, residential focus, maximized on-street parking
 - **Main Streets** serve neighborhood and other major activity centers, commercial focus
 - **Multi-Function Streets** variety of purposes not within above classes
- Other highlights include:
 - Closure of I-5 off-ramp at Cedar Street
 - Reduced number of street lanes; some street segments revert to 2 –way operation.
 - C Street to be dedicated transit-way (Trolley, BRT, shuttles), with possible closures of Second and Seventh Avenues.
 - A, B, E, F, G Streets opened between Harbor Drive and Pacific Highway for improved Bayside access (also L Street).
 - Closures on E and Union for expansion of Federal Court.
 - Various street lane and directional changes for improved access to City College

No improvements planned to freeway segments or on/off ramps

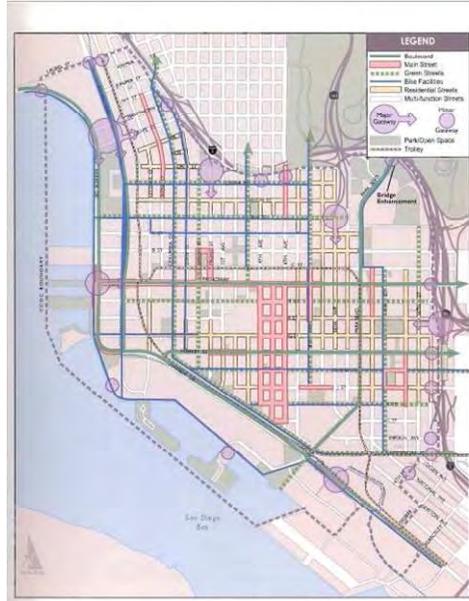


Figure 4-1
Proposed Plan Roadway Classifications

Downtown Community Plan
WILSON & COMPANY
ER Transportation, Circulation, and Access Study

Proposed Plan Roadway Classifications

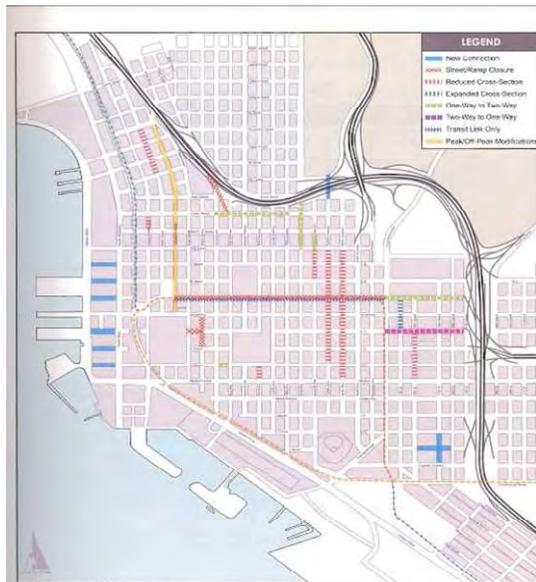


Figure 4-2
Proposed Community Plan Roadway Network Modifications

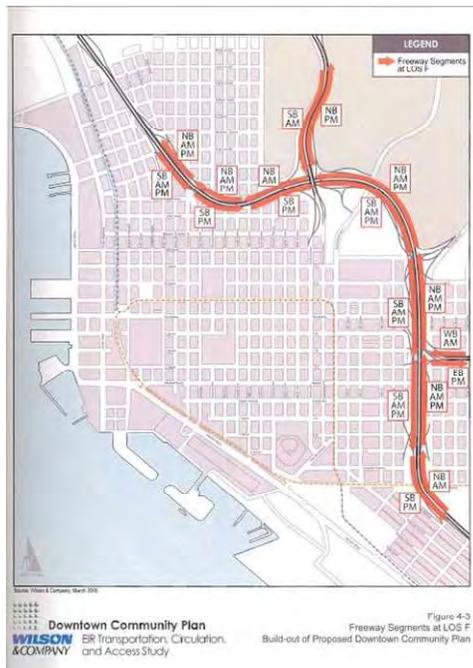
Downtown Community Plan
WILSON & COMPANY
ER Transportation, Circulation, and Access Study

Proposed Roadway Network Modifications

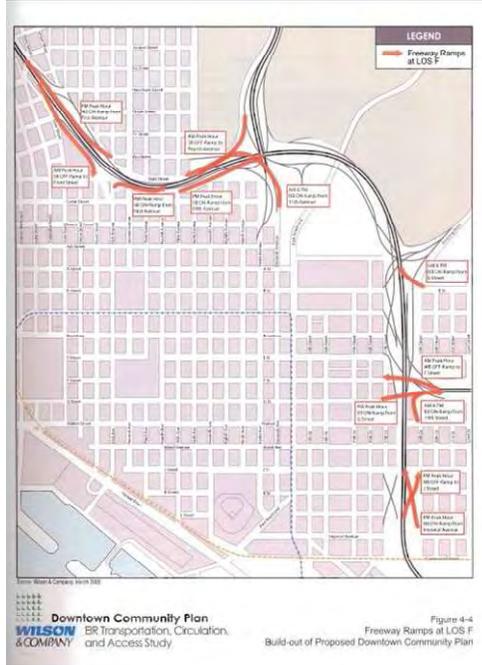
Full Plan Freeway Impacts

- LOS F (severe delays, unacceptable to most drivers) for all segments of I-5 and final segments of SR-94 and SR-163 in at least one direction in each peak
- AM Peak: Four on-ramps exceed 25 minute delays, additional 4 experience 15-25 minute delays
- PM Peak: Five on-ramps exceed 25 minute delays, additional 6 experience 15-25 minute delays
- Freeway queuing will have flow-on impacts to surrounding intersections (unspecified)
- Impacts similar for No Project alternative. Limited number of freeway segments/ramps improve to LOS E or better.
- Very limited opportunities to improve freeway segments or ramps due to space constraints.

Freeways cannot be improved to meet estimated increase of full plan build out.



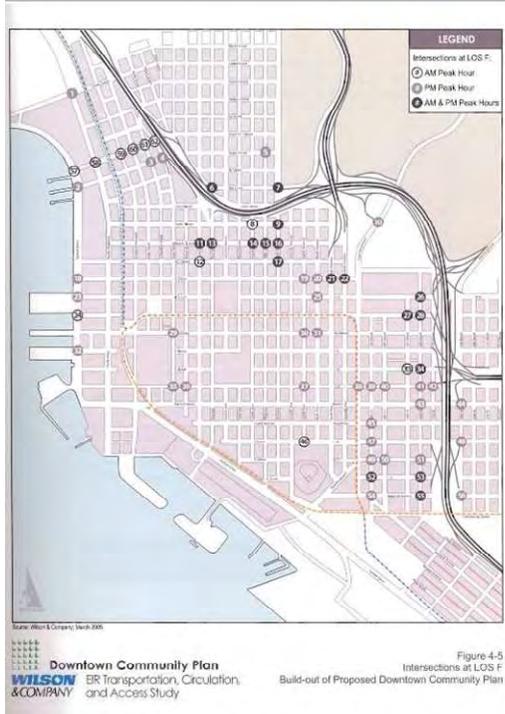
Freeway Segments at LOS F under Proposed Plan Build-out



Freeway Ramps at LOS F under Proposed Plan Build-out

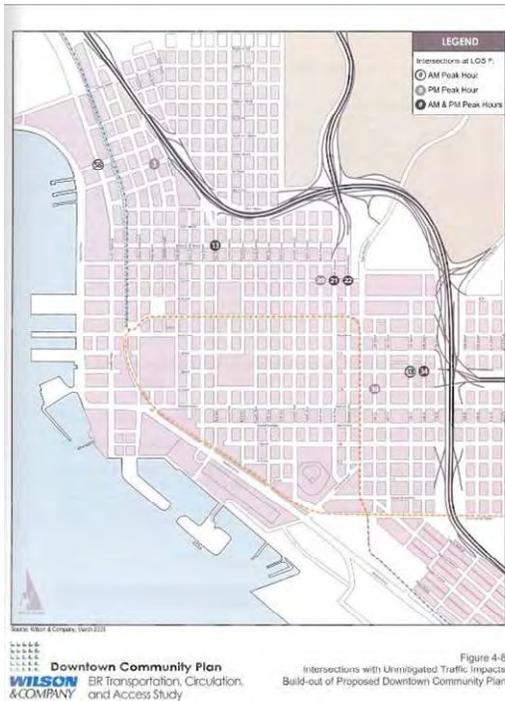
Full Plan Intersection Impacts

- 383,930 (up 86% from 206,800) daily movements at East-West screenlines (Harbor Drive, Columbia Street, 15th Street)
- 347,380 (up 58% from 219,720) daily movements at North-South screenlines (Cedar Street, A Street)
- Of 275 signalized intersections in the proposed downtown network, 62 overall (21 AM peak and 56 PM peak) intersections experience LOS F conditions. Key issues are traffic volumes and lack of turn lanes.
- Rail crossings not expected to be major source of new delay based on Trolley frequency improvements and infrequent freight trains (evening or off peak).
- Of the 62 impacted intersections, 50 can be mitigated, primarily through new turn lanes. Usually achieved through restriping and/or removal of parking. 12 cannot be mitigated.
- 27 downtown intersections would experience LOS F in the No Project alternative (15 AM peak, 20 PM peak)



Intersections at LOS F under Proposed Plan Build-out

Centre City Development Corporation



Intersections Unmitigated from LOS F under Proposed Plan Build-out

Centre City Development Corporation



SECTION 5

San Diego Center City Parking

Parking Supply and Demand

- Estimated parking demand ratios for downtown San Diego (reflect future developments)
 - Office Parking Demand Ratio = 2.1/1000 ft
 - Retail Parking Demand Ratio = 2.3/1000 ft
 - Hotel Parking Demand Ratio = 0.5/room
 - Residential Parking Demand Ratio = 1.35/dwelling unit
- Current parking demand exceeds supply by only 2 percent (based on ratios)
- Future parking demand will exceed existing parking supply by around 100,000 spaces (2.5 times existing supply) if current ratios remain valid
- Applying tighter Planning District Ordinance parking standards to new developments:
 - Office 1.5 spaces per 1,000 sf
 - Retail 1 space per 1,000 sf
 - Hotel 0.3 spaces per room
 - Residential 1 space per unit

Total Extra Supply = 65,056 spaces (35,000 short of estimated demand)

Parking	Location	Existing 2003	Percent
Public Parking	On-Street	6,990	12.3
	Off-Street	34,230	60.2
	Total:	41,220	72.5
Private Parking	Off-Street	15,660	27.5
Total	Grand Total	56,880	100.0

Parking Demand	Existing	Extra Demand	Total Proposed
Office	27,602	35,022	62,624
Retail	6,112	7,848	13,960
Hotel	4,400	5,600	10,000
Residential	19,710	51,975	71,685
Total	57,824	100,445	158,269
Deficit	944	N/A	101,389

Proposed Parking Demand Mitigation

- Plans to change roads downtown may give both opportunities to add parking but also occasions where parking will be removed
- Spillover of parking demand could be a significant impact on surrounding neighborhoods
- Site and design new parking structures to serve multiple land uses with maximized shared parking.
 - Distribute new public garages throughout downtown close to concentrations of final destinations, with typically 600-700 spaces (1000+ for larger stations)
 - Allow sufficient public parking short term near neighborhood centers
 - Work with government agencies in the Waterfront/Marina and Civic/Core areas
 - Require adequate motorcycle and bike facilities at parking stations
 - Consider parking stations under public parks
 - Maximize subterranean parking at new stations, with mixed uses above ground
- Manage use of metered parking through time limits
- Develop fringe or remote parking co-ordinated with transit improvements

Need balance between adequate parking, transit ridership and preserving the urban fabric



Appendix D4 – Alternative Development & Analysis

Memo

INTRODUCTION

This memorandum provides the technical backup to the transportation analysis and discussion described in the primary project report titled “Complete Community | Complete Mobility”. It has been compiled from earlier draft memoranda that were developed and modified during the course of the analysis. Discussions at the January and March Study Team workshop sessions in San Diego concluded that a new transportation strategy will need to be pursued if the land use and quality of life outcomes described in the *Downtown Community Plan* are to be achieved. This memorandum quantifies the public transit ridership and service components of this new transportation strategy at a conceptual level. It also briefly discusses the likely implications for downtown if the transportation strategy outlined in the 2030 SANDAG Regional Transportation Plan (RTP) were to be pursued. This analysis was undertaken at a sketch planning level of detail consistent with the readily available data. It was not, nor was it intended to be a detailed transportation modeling analysis.

The conclusion of the analysis is that a new downtown transportation strategy should adopt an AM peak hour transit mode share objective for downtown destined trips of about 50% by 2030 compared to today’s work-trip-only transit mode share quoted in the *Downtown Community Plan* of about 23%. This will require a strong focus on transit improvements and other non-auto policies with limited road capacity and parking supply increases.

Once there is political acceptance and support for this new transportation strategy, it would be appropriate for further more detailed analysis to be undertaken to arrive at a preferred long range transit plan to support the *Downtown Community Plan*.

DATA SOURCES

Data received from SANDAG that was used to undertake the downtown transit analysis included:

- Shape files of Districts (48), Traffic Analysis Zones (TAZ - 4605) and Trip Distribution Zones (TDZ - 2000).
- District, TAZ and TDZ cross reference files.
- Mode share reports for each forecast year (2003, 2010, 2015, 2020, 2030).
- Daily vehicle trips and transit person trips at 20 screenlines around the CBD for each forecast year (2003, 2010, 2015, 2020, 2030).
- Total person trip files for 10 different trip purposes, for the planning horizon 2030, at a TDZ level:

1. Home to Work	6. Work to Other
2. Home to College	7. Other to Other
3. Home to Education	8. Serve Passenger
4. Home to Shop	9. Visitor
5. Home to Other	10. Airport
- Trip generation reports for each forecast year for zones within the Centre City community planning area (using TAZ’s system).
- Population and employment per district 2004, 2010, 2020, 2030.

Screenline road capacities were calculated using the lane capacity figures from US FHWA for urban areas for two-way streets shown below:

Road Type	cplph ¹
Freeway Ramp	1400
Major Arterial	700
Minor Arterial	620
Major Collector	560
Minor Collector	450
Local Street	350

¹ Capacity per lane per hour

Transit person trip tables for 2003 and 2030 were derived from previous MRC work in San Diego. These tables were also derived from information supplied by SANDAG.

Information on proposed future transit improvements was derived from the 2030 SANDAG Regional Transportation Plan

THE SKETCH PLANNING METHODOLOGY

Transit Mode Share Targets

Many different approaches for tackling the problems posed by the need to increase transit use in highly auto oriented communities have been identified and implemented with varying degrees of success. Where success has been achieved, there has often been a strong commitment to measurable targets in terms of peak hour transit market shares. The adoption of transit policy peak hour mode share targets in critical corridors allows limited transit investment resources to be allocated where it can be most effective. It also ensures that the design of the rapid transit services is properly focused on the transportation problems that need resolution. It is easy to dissipate available but limited transit resources by spreading them too thinly in a futile attempt to reverse the trends of increased auto travel. By adopting policy mode share targets for transit in key corridors and locations such as a downtown core where there is a reasonable chance of successful transit outcomes, a more focused and ultimately more successful transit strategy can be pursued.

Policy mode share targets provide a focus for short and medium term transportation and land use decisions and investments. It also provides a powerful feedback mechanism with which to monitor and track progress thus enabling a continual adjustment to the transportation program to improve its effectiveness.

The targets must be reasonable and achievable both theoretically and in practice given a realistic assessment of the feasibility of providing the necessary transit levels of service. The community must also have the political will to make supportive land use and transportation decisions such as favoring transit investments over all forms of road and parking investments. Success is also dependent on the availability of sufficient funds for the required transit capital and operating expenditures. It is no good adopting transit policy modal share targets in some glossy report but then continuing with business as usual.

The possibility of engineering improvements in transit mode shares and achieving high transit shares in auto oriented environments has been illustrated by experience in communities such as Ottawa and Adelaide. Cities such as Auckland in New Zealand and Brisbane in Australia have already been capitalizing on this experience.



The Study Team decided that the best way of developing a focused transit strategy for the *Downtown Community Plan* was to adopt a transit mode share objective approach. In other words a top down analysis is recommended in which the transit requirements of the *Plan* are defined based on the need to maximize the amount of space available in the Downtown for non-vehicle transportation purposes. The future transit system can then be designed to achieve the transit mode share targets. The implication of this approach is that all the growth in travel into the Downtown over and above that which can be accommodated on the current road system will have to be carried out by walking, bicycling, and on transit.

Determining Transit Mode Share Objectives for San Diego

The Existing Road Capacity

For the purpose of this analysis, the road capacity of interest is that of a screenline around the Downtown. The Downtown Screenline was defined as running from north to south along the south side of West Laurel Street and then inside I-5 to south of Commercial St. and then westerly to the shoreline as shown in Exhibit 1. Part of the Little Italy / Midtown district was excluded from the corridor analysis in order not to double-count traffic entering or exiting the I-5 Freeway. This means that approximately 6% of person trips destined to downtown were omitted from the analysis.

The individual screenline crossings were grouped into four inbound corridors; Corridor One stretched from the shoreline to east of Front Street, Corridor Two from this point to south of Park Boulevard, Corridor Three from south of Park Boulevard to south of Commercial Street, and Corridor Four encompassed the remainder of the screenline south of Commercial Street to the shoreline.

The different corridors included the following roads and transit lines:

- **Corridor 1:** North Harbor, California, Pacific, Coaster, LRT blue line, Kettner, India, State
- **Corridor 2:** I-5 ramps, 1st Ave, 2nd Ave, 3rd Ave, 4th Ave, 5th Ave, 6th Ave, SR-163 ramps, Park
- **Corridor 3:** Pershing, B Street, C Street, Broadway, SR-94 ramps, G Street, Market, Island, J Street, Imperial, Commercial, LRT orange line
- **Corridor 4:** Kearney, Logan, 17th Street, National, Harbor, LRT blue line

Exhibit 1 Downtown Screenline and Corridors



The screenline road capacity of the four corridors was based on the number of lanes available and road type using lane capacity figures from US FHWA for urban areas for two-way streets shown in the Data Source Section above. An additional 100 vehicle capacity was added for one-way streets (source: NCHRP). The lane capacity figures assume a D road level of service. For a screenline or screenline segment comprising several links, it is usual to assume that effective screenline capacity is about 90% of the link totals to account for distributional affects along the screenline. Since an E level of service capacity is about 10% higher than that of a D level of service, the sum of the link D level of service

capacities provides an effective capacity for an E level of service. This was used in the analysis as representing the maximum available road capacity available before gridlock would ensue.

With the assumptions and parameters detailed above, the road capacity per hour in each corridor is as identified in Table 1. These vehicle capacity estimations are comparable to 2003 vehicle counts, assuming that daily traffic destined to downtown represents half of the daily inbound and outbound traffic, and that 15% of the daily traffic destined to downtown occurs during the AM peak hour. This assumed AM peak hour factor is derived from Toronto experience where 15.1% of daily vehicle trips destined to downtown occur during the AM peak hour.

Corridor	1	2	3	4	Total
Inbound	7,250	16,020	12,865	2,750	38,885
Outbound	8,150	15,810	14,430	3,650	42,040

Table 2 summarizes the 2003 auto counts on the screenline (provided by SANDAG), using the directional and peak hour assumptions and removing bus vehicles and counts on I-5. This data confirms the anecdotal statements that today most of the Downtown Screenline is operating at or near capacity.

Corridor	1	2	3	4	Total
Daily auto trips	78,740	235,440	155,120	31,155	500,455
AM peak hour inbound auto trips	5,905	17,660	11,635	2,335	37,535
2003 corridor utilization	0.81	1.10	0.90	0.85	0.97

According to the transportation analysis conducted for the Downtown Community Plan³, the average auto occupancy in 2003 for trips destined to downtown was of 1.282. The planned auto occupancy in 2030 is projected to be of 1.304. Based on this projection, an average auto occupancy of 1.3 was assumed in this analysis. SANDAG forecasts an average vehicle occupancy of 1.36 for 2030 due to HOV lane implementation projects. The comparable Toronto and Ottawa figures are 1.22 and 1.23 respectively, which suggests that the effective person trip capacity of the screenline may decline as the transit service is improved as most people choose transit over car-pooling when high quality transit is provided.

Based on an average car occupancy of 1.3 in 2030, the corridor capacities in Table 2 translate into the corridor person trip capacities shown in Table 3.

Corridor	1	2	3	4	Total
Inbound	9,425	20,825	16,725	3,575	50,550
Outbound	10,595	20,555	18,760	4,745	54,655

The Total Person Demand

The 2030 AM peak hour total person trip table was created from the ten different trip purpose daily trip files provided by SANDAG and shown in Table 4. The peak hour table was assumed to be 17.5% of the destined trips. For comparison the peak hour percentage in Toronto is 18.8% of the daily inbound total.

³ Draft Environmental Impact Review- Wilson & Company, July 2005

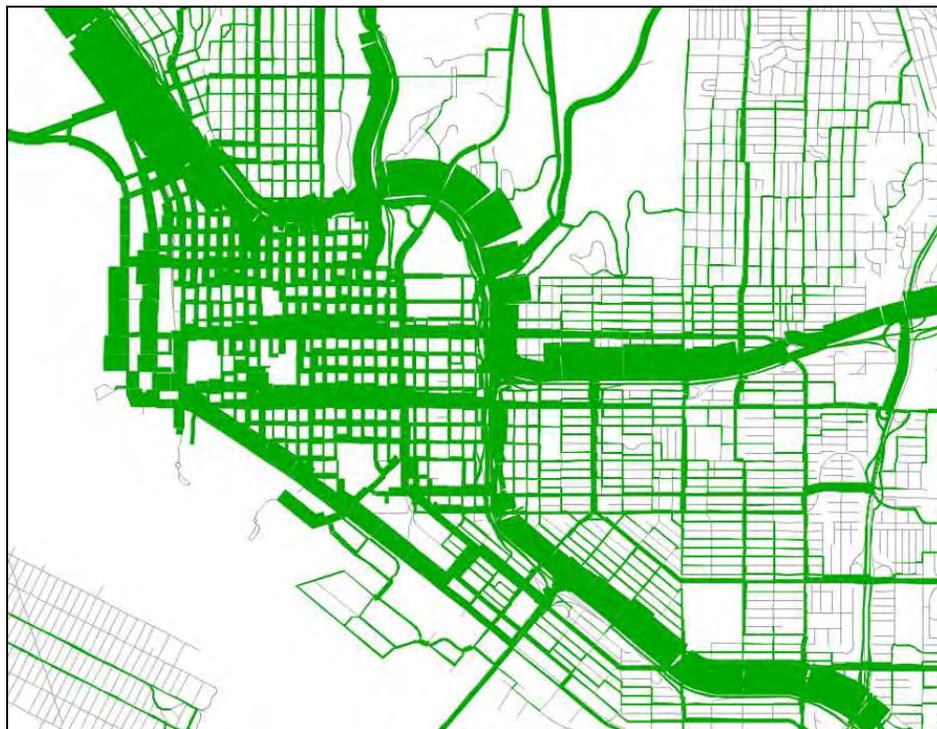


Trip Purpose	Daily	AM Peak Hour	Distribution
Home to Work	128,750	70,813	55%
Home to College	15,173	3,793	25%
Home to Education	3,791	1,516	40%
Home to Shop	57,231	1,145	2%
Home to Other	200,757	40,151	20%
Work to Other	143,479	2,870	2%
Other to Other	230,404	4,608	2%
Serve Passenger	76,663	35,265	46%
Visitor	66,642	1,333	2%
Airport	0	0	2%
Total Person Trips	922,890	161,494	17.5%

The AM peak hour trip table was assigned to the existing road network using MRC's VISUM based transportation model to determine the future total peak hour inbound demand across the Downtown Screenline by corridor. The result is shown in Table 5 and is presented visually as Exhibit 2.

Corridor	1	2	3	4	Total
Inbound	12,400	42,100	25,400	7,800	87,700
Outbound	610	4,160	1,170	1,230	7,170

Exhibit 2 2030 Downtown AM Peak Hour Total Person Trip Assignment to Road Network



It is evident from Table 5, that as expected in the AM peak hour, the outbound traffic is not an issue, while the inbound traffic would be overcapacity by approximately 37,000 person trips compared with the existing capacity of the Downtown Screenline shown in Table 3. It is also noted that out of the 161,500 person trips assigned to the Downtown, only 55% cross the screenline, meaning 45% of those trips are internal within the downtown. This is in line with what is observed today from the 2003 person trip table.

These demand figures are based on the SANDAG population and employment projections for the 2030 forecast year. As shown in Table 6, the *Downtown Community Plan* (CCDC) forecasts 7,000 more residents and 25,000 more jobs in Downtown than SANDAG's RTP.

	Population	Employment
2004	29,150	70,240
2030 – SANDAG forecast	83,000	100,000
Build Out (post 2030) – CCDC forecast	90,000	125,000

To account for the higher *Community Plan* forecasts, the AM peak hour inbound person trip screenline crossing volumes shown in Table 5 were increased proportionately by a total of 12,000 trips. The 12,000 figure was derived as the rounded average of a high and low assumption of the amount of trip retention in the Downtown and an assumption that 55% of home to work trips occur in the peak hour. The high assumption was that all the increased home to work trips would cross the screenline while the low assumption was that all the population increase had home to work trips within the Downtown.

The difference between the 2030 total person trip demand and the screenline person trip capacity is the number of downtown destined trips crossing the screenline that will need to be accommodated by one of the three non-auto modes (transit, bicycling or walking). For the purposes of this analysis, bicycling and walking are assumed to account for 10% of the non-auto trips. This is probably a conservative assumption as in Vancouver, for example, bicycling and walking account for 30% of all trips to and in the downtown. Table 7 shows the preliminary estimate of the number of destined trips that will need to be accommodated on transit if no more road capacity is added to the Downtown Screenline.

	Corridor 1	Corridor 2	Corridor 3	Corridor 4	Total
SANDAG Demand	12,400	42,100	25,400	7,800	87,700
Additional Demand	1,700	5,800	3,500	1,000	12,000
Total Person Trips	14,100	47,900	28,900	8,800	99,700
Person Trip Capacity	9,425	20,825	16,725	3,575	50,550
Excess Demand	4,675	27,075	12,175	5,225	49,150
Destined Transit Trips	4,200	24,400	11,000	4,700	44,300

A transit demand of about 44,300 out of 99,700 person trips represent a predicted transit mode split of 44% for trips destined to downtown during the AM peak hour. In addition to these downtown destined trips there will be a significant number of through transit trips that unlike the auto trips will have to use the transit services serving the downtown. An estimate of the likely volume of through transit trips was obtained from an assignment of a 2030 transit trip table.

The source of this 2030 transit trip table was a transit model of San Diego developed by MRC as part of a previous assignment and based on data supplied by SANDAG. This model was built in VISUM, using shape files, employment and population forecasts for 2030, and an AM peak period transit trip table for 2003 provided by SANDAG. A fuzzy logic process was used to adjust the 2003 transit trip table to bring it into reasonable agreement with transit passenger counts for 2003 also supplied by SANDAG. The AM



peak period transit trip table for 2030 was developed by Fratar using the 2003 trip table using the SANDAG supplied population and employment land-use data. This trip table represented, in effect, a 2030 scenario with the same transit trips per capita and per job as in 2003.

To estimate the number of through trips in 2030 that would need to be added to the screenline figures in Table 7, it was assumed that they would be similar to the number of 2030 through trips produced by the Fratar 2030 trip table. In other words, it is assumed that the transit mode share of these trips will remain unchanged. This is probably a reasonable assumption because although these trips will benefit from the transit improvements to be made for the downtown, they will also be affected by the improved road network proposed in the SANDAG plan.

To obtain the number of through trips, the assignment of the total trip table was compared with the assignment of the downtown destined trips. The results are shown in Table 8:

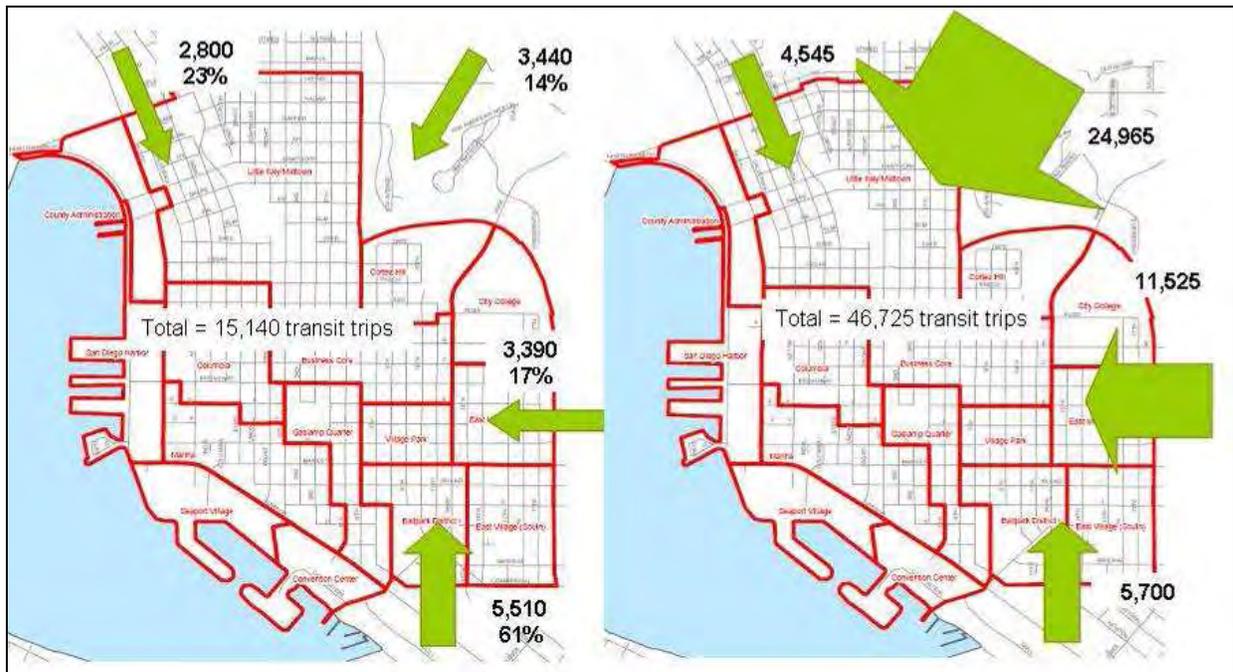
Corridor	1	2	3	4	Total
All Transit Demand	1,365	1,935	2,635	3,140	9,075
Transit Demand to Downtown	1,020	1,370	2,110	2,140	6,640
Through Transit Demand	345	565	525	1,000	2,435

The through transit demand represents approximately 27% of the total transit demand going to downtown. This is because the current transit network is very focused on downtown, all rail lines, for example go through downtown. The 2030 SANDAG plan, however, includes several new services designed to serve the future through trips by bypassing the Downtown. It is expected that these new routes will attract some of the through trip demand but this impact is not reflected in Table 9, which shows the projected total 2030 transit trips that are expected to cross the Downtown Screenline.

Corridor	1	2	3	4	Total
Destined Transit Trips	4,200	24,400	11,000	4,700	44,300
Through Transit Trips	345	565	525	1,000	2,435
Total Transit Demand	4,545	24,965	11,525	5,700	46,735

The sum of the destined transit trips and the through trips in each corridor provides the total number of transit trips that must be accommodated in 2030 if there is no new road capacity added to the Downtown Screenline. The rounded results of the analysis described above are presented in Exhibit 3, which shows the AM Peak transit person trip flows for each corridor in 2003 and the 2030 volumes required to support the *Downtown Community Plan*.

Exhibit 3 Existing and Target AM Peak Hour Inbound Transit Person Trips



The Transit Person Trip Demand

As has been emphasized elsewhere, the current study is intended to include only a conceptual level analysis of the future transportation demands. To be able to demonstrate the financial feasibility and cost effectiveness of the recommended complete mobility strategy, however, requires a reasonable level of confidence as to the likely demands on the rail and bus networks. The methodology used to arrive at the target corridor demands shown in Table 9 and Exhibit 3 assumes that all the transit trips travel on the road network. This is clearly not the case for downtown San Diego, which is served by a multi-corridor rail network. To properly evaluate the impact of the target transit demand, it must be assigned to a representative 2030 rail and bus network. Options for addressing the new capacity requirements will consist of a varied mix of rail and bus capacity increases. Relying solely on either rail capacity increases or bus capacity increases are not feasible options.

The first step in the transit assignment process was to modify the Fratedred 2030 AM peak hour table to include the impact of the transit strategy for Downtown by proportionately increasing the trips with a destination within the Downtown so that in total they summed to the 44,300 destined transit trips shown in Table 9. This is the projected number of downtown destined transit trips in the 2030 AM peak hour required to accommodate the increased demand above the existing road capacity of the downtown screenline.

The transit network that was tested consisted of the existing transit network with the addition of the new Trolley, BRT and bus routes identified in the RTP, and some modifications to SANDAG’s proposed 2030 Trolley Network. This network was developed to be representative of a possible transit network that could meet the needs of the future demands.

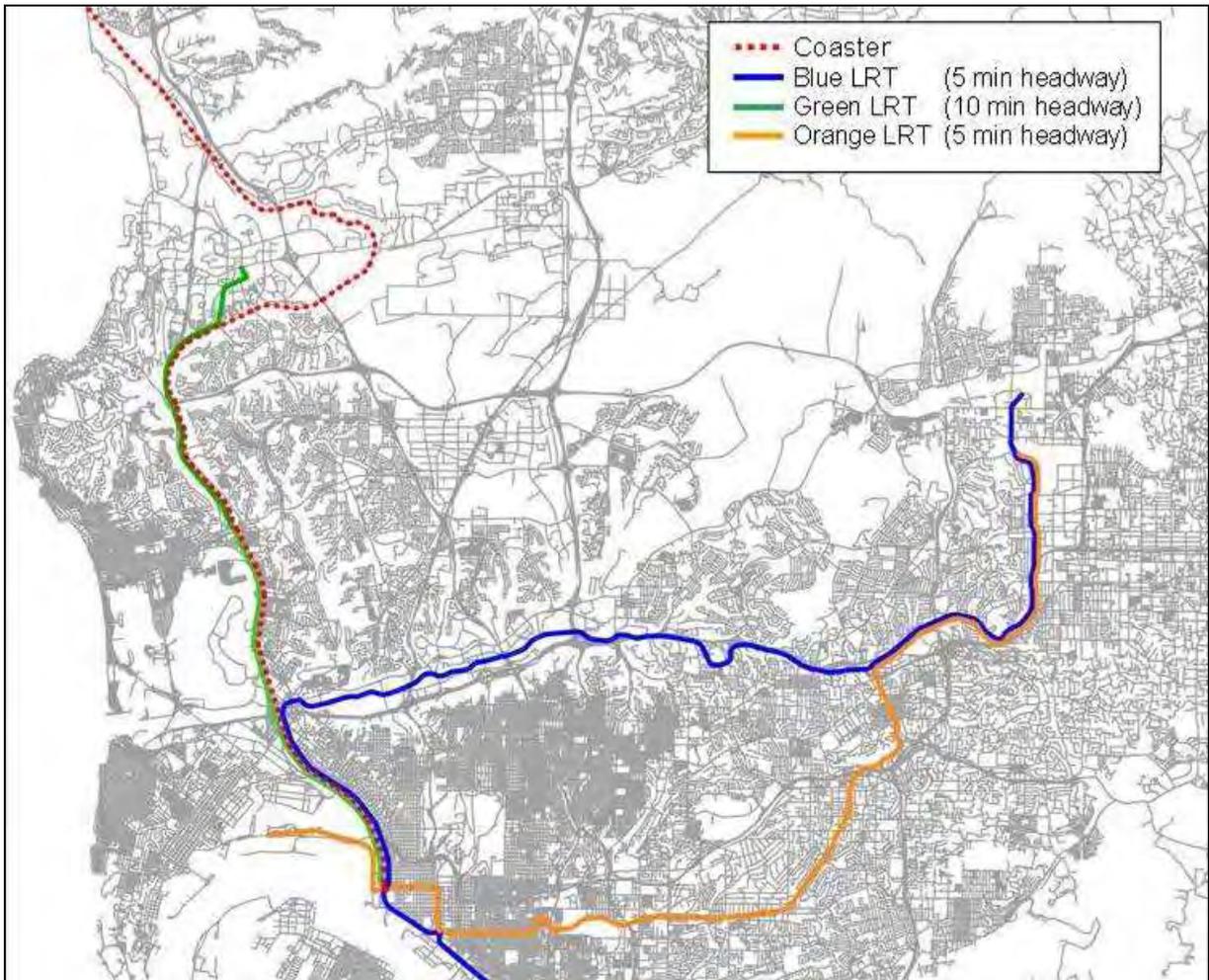
Table 10 shows SANDAG’s proposed new BRT and other services. The source for this information is *Table 6.3 New or Improved Transit Routes* from the RTP.

Table 10 New Bus Services	
Rte	Service Improvement
30	UTC to CBD via La Jolla Village Dr, La Jolla Blvd, Grand Avenue, & I-5
611	SDSU to CBD via El Cajon & Park
120	Kearny Mesa to CBD via 4th/5th/SR 163
640	San Ysidro to CBD and Kearny Mesa via I-5 & 4th/5th/SR 163
610	Escondido to CBD via I-15/ SR 94*
628	Otay Mesa to CBD via I-805/SR 94
90	El Cajon to CBD via SR 125 & SR 94
640	San Ysidro to CBD and Kearny Mesa via I-5 & 4th/5th/SR 163 Guideway
680	Otay Mesa to Sorrento Mesa via I-805/I-15/SR52
83	Existing Rte 83 deleted north of Hawthorne and extended south of Broadway via Front and First to Island Ave

The route headways of the existing bus network serving the Downtown and of the new routes in Table 10 were increased to reflect the need to carry many more transit riders than today or projected in the RTP. The operating speeds of the existing bus routes was assumed to be maintained and for the new BRT services in Table 10, average speeds including stops at on-line stations was assumed to be 60 km/h on freeway busway sections and 40 km/h on arterial busway sections.

For the rail network, shown in Exhibit 4, the Coaster was assumed to operate with a reduced headway. The Trolley Network was assumed to be modified by extending the Blue Line to Santee Town Center replacing the existing Green Line service. Within the Downtown the Blue Line service was removed from C Street and Park Boulevard and was instead routed on Harbor Drive. A new Green Line service was assumed to operate in the Mid-Coast corridor between the Santa Fe Depot and UTC. The Orange Line was assumed to be removed from Harbor Drive between the Santa Fe Depot and the 12th and Imperial Transit Center so that it operated only on C Street and Park Boulevard in the Downtown. This line was extended from the Santa Fe Depot to the Airport via Broadway and Harbor Drive. For modeling purposes, the Blue and Orange Lines were assumed to each operate on a 5-minute peak headway and the Green Line on a 10-minute splitting alternative Blue line headways. The peak rail and bus capacities were based on figures from the MTS and North County Transit District websites. A 4-car trolley train has a capacity of 600 persons, a coaster train can accommodate 675 persons and an average bus has a 50 person capacity assuming a mix of standard and articulated buses. BRT vehicles are assumed to be articulated buses with a peak hour capacity of about 65. It is emphasized that these suggested routes and services are a representative configuration of transit infrastructure that could meet the projected demand. Other alternative configurations could also achieve this purpose.

Exhibit 4 Assumed 2030 Rail Network



The revised 2030 AM peak hour transit trip table was assigned to the proposed 2030 transit network producing the assignment results shown in Exhibit 5.

To simplify the modeling process, further fine tuning of this assignment was not undertaken using the model. Instead post assignment hand adjustments were made to produce the adjusted target Downtown screenline crossings shown in Exhibit 6, which shows the projected AM Peak hour transit person trip flows by mode in 2030 that are required to support the *Downtown Community Plan*.

Exhibit 5 Target AM Peak Hour Inbound Destined Transit Person Trips

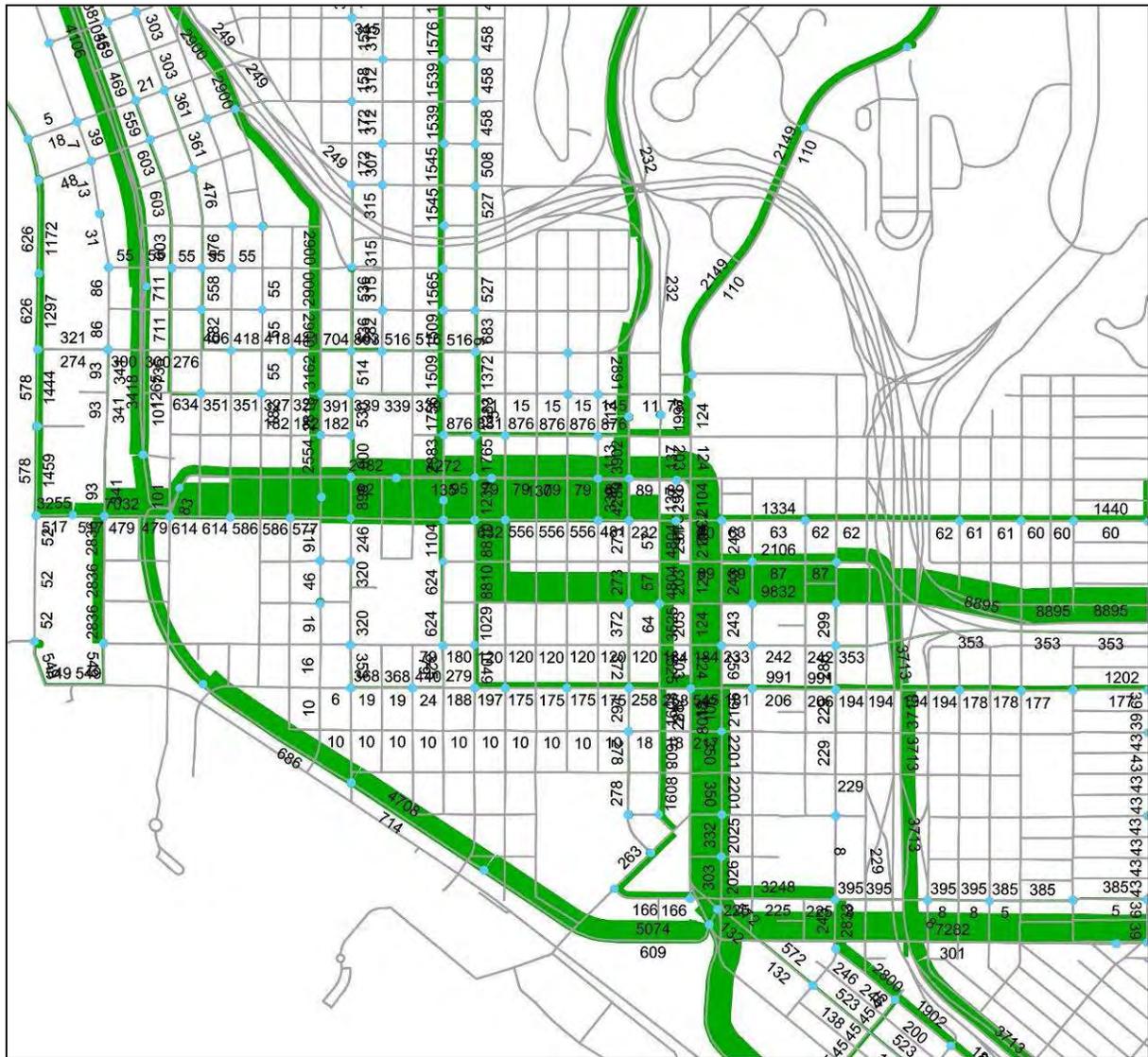
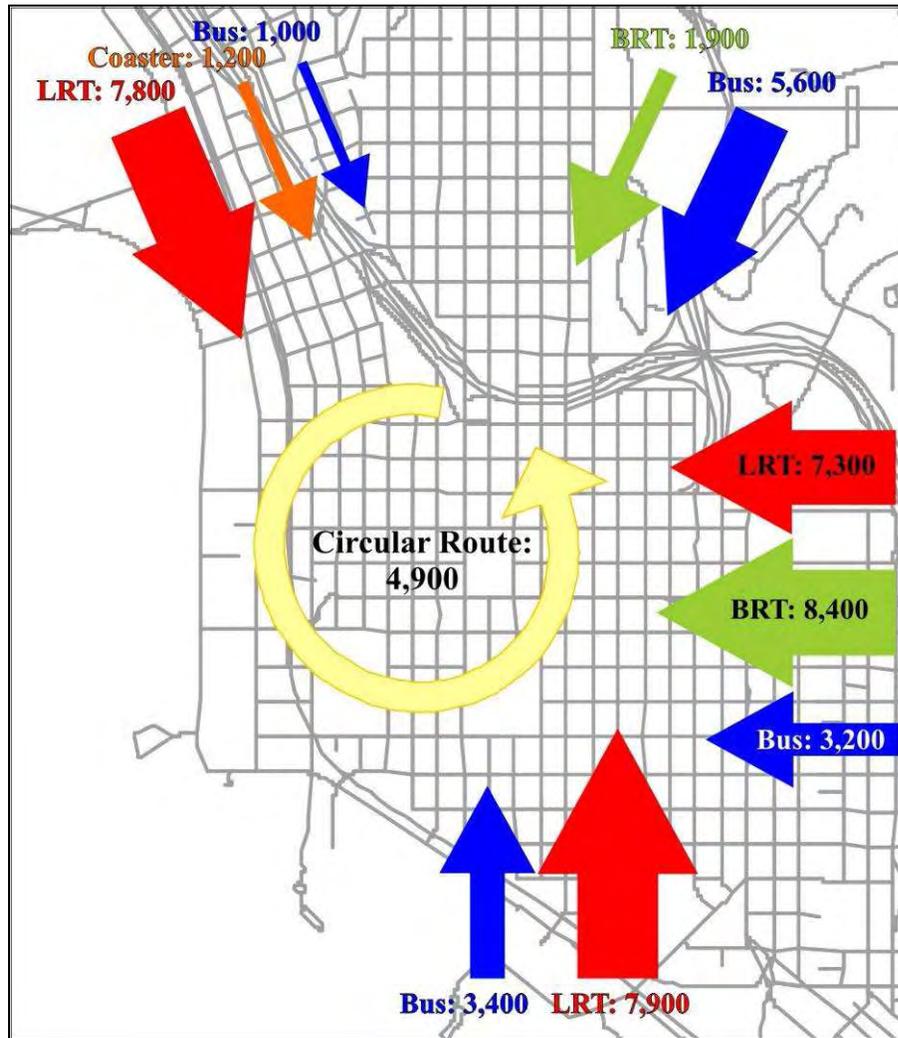


Exhibit 6 shows that significant service frequency improvements will be required. The volume of buses on the proposed new BRT services in the RTP will need to be increased from a projected 52 buses in the peak hour to approximately 160 buses all of which will need to be articulated buses with a peak capacity of about 65. These BRT services will have to enter the Downtown in some form of grade separated exclusive right-of-way particularly in Corridor 3 (SR94) so as to avoid the road congestion at the screenline.



Exhibit 6 Adjusted AM Peak Hour Inbound Transit Mode Flows



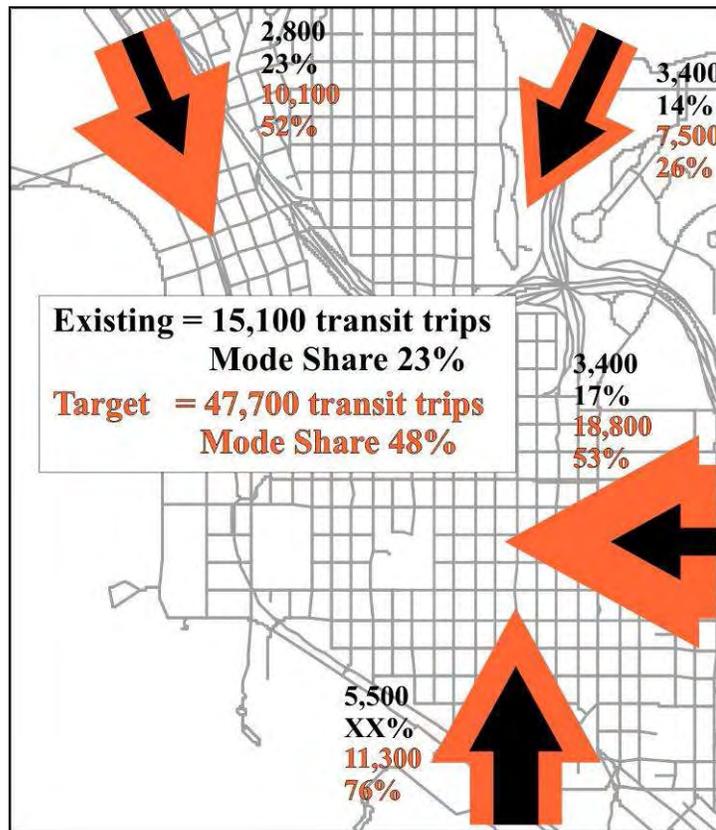
The peak hour volume of buses on the existing bus routes will have to increase from a current 93 buses to about 240 buses, assuming a mix of articulated and standard buses and an average peak vehicle capacity of 55 persons. Table 11 shows the projected bus and BRT vehicle volumes by corridor.

	Corridor 1	Corridor 2	Corridor 3	Corridor 4	Total
Existing Bus Volumes	8	48	21	16	93
RTP BRT Volumes	6	20	18	8	52
Bus Person Trips	1,020	5,580	3,190	3,400	13,190
Bus Volumes	19	101	58	62	240
BRT Person Trips	0	1920	8370	0	10290
BRT Vehicle Volumes	0	30	130	0	160

The projected volume of buses and BRT vehicles can be accommodated on the streets that currently have bus service. In other words no new street capacity will be required for this purpose. It would be appropriate, however, to consider the dedication of some of the existing street capacity as exclusive bus lanes and to adjust the traffic signals to favor bus operations rather than the automobile. This would further improve the transit level of service and would be in keeping with the principle of prioritizing the movement of people over the movement of vehicles.

The Trolley assignment shows that an at-grade solution along the proposed lines is feasible assuming the operation of 4-car trains with a per train capacity of 600. The Blue and Orange Lines would need to operate at 5 minute headways and the Green Line with 15 minute headways. 30-minute headways would be required for the Coaster. Exhibit 7 shows the existing and target AM peak hour transit mode shares for each corridor.

Exhibit 7 Existing and Target AM Peak Hour Inbound Transit Mode Shares



This sketch planning analysis demonstrates that a complete mobility transportation strategy for Downtown San Diego is feasible. The existing average inbound AM peak hour transit mode share will need to more than double from 23% to about 48%. While ambitious this is not an unreasonable objective. All the case study cities with truly livable downtowns have achieved at least this level of transit use. To increase the transit mode share, however, significant transit level of service improvements will be required. This means providing high quality, comfortable and direct services that offer improved service speeds, higher service frequencies that do not require the use of a timetable (headways of 7/8 minutes or less) and a reduced need to transfer.

The projected 48,000 AM future peak hour transit trips that will travel into and through the Downtown can be accommodated without having to resort to major rail grade separations such as a trolley tunnel in the Downtown. However, some form of enhanced transit infrastructure such as exclusive bus lanes

or a busway would likely be necessary to accommodate these volumes. If, in the longer term, a decision were taken to grade separate one of the downtown trolley alignments, it would be worth investigating the feasibility and practicality of replacing some or all of the Corridor 3 BRT service with a higher capacity facility. The results of this analysis suggest that only the construction of a new rail corridor would significantly affect the future balance between Trolley and BRT patronage and thus the service requirements.

IF NOT TRANSIT?

The *Downtown Community Plan* assumes that auto travel will continue to be the dominant mode of transportation and that new parking capacity and street improvements will be required. There is no provision for the sort of major improvement in transit use and service that would be required by a complete mobility strategy. The transportation analysis of the Plan undertaken by Wilson & Company, concluded that in the absence of significant transit use improvements, major road capacity increases would be required at the downtown boundary. The RTP projects slightly less downtown employment and land use growth than assumed in the *Downtown Community Plan* but also projects only a modest increase in transit use. (Note that the RTP and this analysis use 2030 while the *Downtown Community Plan* assumed build-out.) Road based improvements including HOV measures are assumed to accommodate the balance of the travel demand in and out of the Downtown.

It is not clear how much new road capacity can be added without creating enormous environmental impacts on the fringe of the Downtown. In these circumstances, it may be difficult if not impossible to add much of the required road capacity. This in turn would mean that the existing road capacity will effectively limit the amount of new development that can take place in the Downtown.

There are thus three possible different futures facing Downtown San Diego:

- 1) Endorse the *Road Expansion Strategy* of the RTP and accept the construction impact of major new road capacity into the downtown and the implications of a continuation of a largely auto dominated downtown environment.
- 2) Adopt a *Low Growth Strategy*, add no new road capacity and make minor improvements to the existing transit service as per the RTP. Modify the current balance between movement and exchange space where this can be done with little or no real impact on the auto level of service and accept only modest increases in population and employment.
- 3) Recognize that the land use and quality of life goals of the *Downtown Community Plan* can only be realized by accepting the need to limit any further significant increase in auto commuting in and out of the downtown in conjunction with a *Complete Mobility Strategy* as described in the first section of this memorandum.

The Road Expansion Strategy

This strategy is in essence that proposed in the RTP. Some frequency improvements will be made to the Trolley and Coaster and several new BRT type services will be added based on the use of "managed lanes" with off-line stations. As a result the number of transit trips entering the Downtown in 2030 will rise modestly to about 22,500 in the AM peak hour. This estimate is based on the daily transit person trip data at Screenline 20 supplied by SANDAG. The inbound volume was assumed to be half the two-way daily figure and the inbound peak hour was assumed to be 25% of the daily inbound flow. This compares to 24.9% of the daily inbound volume in Toronto. Unfortunately at this level, transit's mode share will still be only about 23% and there will be about 77,000 auto based person trips in the peak hour assuming the total AM peak hour person trip demand of 99,700 shown in Table 7. At the present average auto occupancy this translates into 59,500 auto trips trying to cross a screenline with an existing capacity of about 38,900 autos per hour.

The RTP suggests two strategies to address this problem; firstly, an extensive program of HOV measures including managed lanes, and secondly, capacity improvements on the screenline. If,

optimistically, the HOV measures were to improve the average occupancy by say 15% to 1.5, this would still leave a need for new road capacity capable of accommodating about 12,000 vehicles. It is noted that the RTP assumes an average occupancy increase of only 6% from 1.282 to 1.36.

Depending upon the design of this capacity, it is equivalent to about 12 lanes of new traffic assuming a 15% increase in average occupancy. Given the built up nature of the land use at the periphery of the Downtown, there must be serious doubts as to the feasibility of constructing this much new road capacity which equals about 30% of the existing capacity. In addition, major improvements would also have to be made to the road system within the downtown to allow the new capacity to be used effectively. This would obviously further reduce the already low amount of exchange space within the Downtown. Compounding this problem would be the need to further increase the supply of parking by about 25,000 spaces assuming that the peak hour demand represents just under 50% of the long term parking demand.

The level of investment that would be required for the road system is many times that proposed for transit even under a complete mobility strategy. If it is made, this level of road investment would further reinforce the automobile orientation of Downtown and it would likely undermine even the RTP's modest transit ridership growth projections.

The Low Growth Strategy

If the road investments required for the road expansion strategy are not made but only the transit improvements described in the RTP go ahead, the amount of population and employment in will be much less than that proposed in *Downtown Community Plan*. The very high levels of congestion that would exist on the periphery of the Downtown would effectively limit the amount of future growth that would occur. In the absence of an adequate transit alternative, the future land use growth would migrate elsewhere. In some cases this would be to other relatively less congested parts of the San Diego region but much of the development that requires a downtown environment would simply not occur anywhere in San Diego.

A rough calculation suggests that there could be 40% less population and 30% less employment than proposed in the *2030 Downtown Community Plan*. This estimate assumes that the growth in population and employment will be approximately proportional to the growth in the number of inbound AM peak hour person trips crossing the Downtown Screenline. Table 12 shows the person trip screenline crossings in 2003 and 2030 under the *Complete Mobility* and *Low Growth* strategies together with the projected population and employment levels based on this assumption.

Table 12 Projected Population and Employment Levels			
	Existing	Complete Mobility	Low Growth
Transit Person Trips	15,140	47,650	22,500
Auto Person Trips	48,120	50,550	53,626
Total Person Trips	63,260	98,200	76,126
Percent Growth	-	55%	20%
Population	29,150	90,000	51,300
Employment	70,240	125,000	90,200

There would still be an opportunity, however, to make many of the changes described elsewhere as being essential for a "World Class" downtown because the amount of auto traffic on the streets within the Downtown would only be about 10% more than today. This is approximately the amount of unused capacity today based on the data in Table 2 and the assumed RTP increase in average auto occupancy to 1.36. The problem is whether the reduced level of investment would be sufficient to finance what is required.



San Diego Downtown Community Plan

An Alternative Transportation Strategy



San Diego Downtown Transit Alternative Plan

The Seven Deadly Wins

- 1) Transport is about people and goods, not vehicles
- 2) The city is a place of exchange
- 3) The city is a place to enjoy
- 4) The city is a place of chairs
- 5) The city is defined by its arrival points
- 6) The city is a place of movement and connectivity
- 7) The city is a complex system of interactions

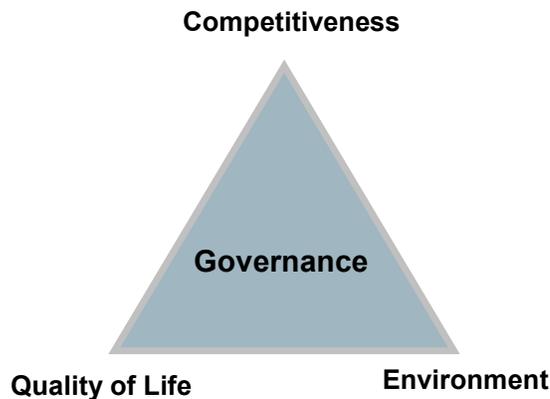


San Diego Downtown Transit Alternative Plan



The Triangle for Success

Achieving holistic solutions that are more than just infrastructure



San Diego Downtown Transit Alternative Plan

The Regional Context

- Strong Cities and Regions need a strong and economically viable downtown
- The Downtown Core is unique among the regional urban centers
- The scale and the land use environment of the downtown requires a unique transportation treatment

Everybody in the region has a stake in a strong and vibrant Downtown



San Diego Downtown Transit Alternative Plan

San Diego's Community Plan overview

- A distinctive world-class downtown, reflecting San Diego's unique setting
- The center of the region
- Intense yet always livable, with substantial and diverse downtown population
- A nucleus of economic activity
- A collection of unique, diverse neighborhoods with a full complement of uses
- A celebration of San Diego's climate and waterfront location
- A place connected to its context and to San Diego Bay
- A memorable, diverse and complex place



San Diego Downtown Transit Alternative Plan

The Recommended Approach

**The right vision and the
seven deadly wins**



San Diego Downtown Transit Alternative Plan

7

Win 1 **Transport is about people and goods, not vehicles . . .**

- The *Downtown Community Plan* or vision has the land use elements for a successful city and provides for 90,000 population and 125,000 jobs.
- The success of the plan is predicated on the ability to accommodate a significant increase in auto volumes

The Issue:

	Transit Demand	Transit Mode Share	Auto Capacity	Auto Demand
Today	15,140	23%	39,000	35,000
2030 Plan	22,375	24%	39,000	65,000

AM peak Hour Inbound



San Diego Downtown Transit Alternative Plan

8

Win 1 **Transport is about people and goods, not vehicles . . .**

- Freeways and ramps will have delays of 15 to 25 minutes and more
- Freeway queuing will have flow-on impacts to surrounding intersections

Few if any feasible opportunities to improve freeways or ramps due to space constraints

Draft Environmental Impact Report July 2005



San Diego Downtown Transit Alternative Plan

9

Win 1 **Transport is about people and goods,
not vehicles . . .**

***An auto focused transportation strategy
will fail and jeopardize the economic
viability of the Downtown,
however....***

 *San Diego Downtown Transit Alternative Plan*

10

Win 1 **Transport is about people and goods,
not vehicles . . .**

A transportation strategy focused on people and goods would:

- *Give pedestrian, bicycling and transit service improvements priority over auto based improvements*
- *Adopt a significantly increased transit mode share objective for downtown travel*

 *San Diego Downtown Transit Alternative Plan*

11

Win 1 **Transport is about people and goods, not vehicles . . .**

And would produce a different outcome:

	Transit Demand	Transit Mode Share	Auto Capacity	Auto Demand
Today	15,140	23%	39,000	35,000
2030 Plan	22,375	24%	39,000	65,000
2030 Alternative	51,200	50%	39,000	39,000

AM peak hour inbound



San Diego Downtown Transit Alternative Plan

12

Win 1 **Transport is about People and Goods, not Vehicles . . .**

- This will ensure the economic viability of the Downtown
- This is the transportation strategy of successful cities
- It is transit mode share objective has been achieved or exceeded by many similar North American cities
- A downtown transit solution is far more cost effective than a road based solution

Several feasible opportunities to improve the existing rail and bus services



San Diego Downtown Transit Alternative Plan

Win 2 The City is a Place of Exchange

- For the economy of the Downtown to work:
 - ▣ Maximize exchange space
 - ▣ Minimize movement space
 - ▣ Maximize productivity of the movement space

Area unit is acres	Downtown Area	Private Space	Movement Space	Exchange Space
Today	1400	650	560	190
2030 Plan	1400	650	800	(-50)
2030 Alternative	1400	650	500	250



San Diego Downtown Transit Alternative Plan

Win 2 The City is a Place of Exchange

- The movement space needs of the 2030 Plan will eliminate any ability to provide exchange space and impact on the available development space
- The 2030 Alternative will permit the existing exchange space to be increased by about 30%
- The 2030 Alternative will pursue further opportunities to increase the exchange space to more closely match the movement space



San Diego Downtown Transit Alternative Plan

Win 2 The City is a Place of Exchange



San Diego Downtown Transit Alternative Plan

Win 2 The City is a Place of Exchange



San Diego Downtown Transit Alternative Plan

Win 2 The City is a Place of Exchange



San Diego Downtown Transit Alternative Plan

Win 3 The City is a Place to Enjoy

- A Downtown attractive to the region and to visitors
- Places of exchange
- Places where people want to be and stay
- Places linked together by walking, the bike network and transit
- Places well designed, secure and comfortable encourage people to spend money

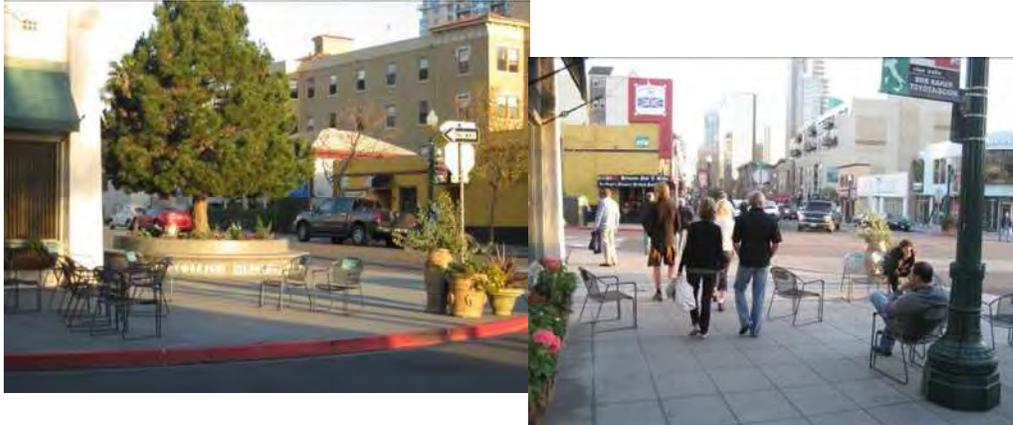
There are many places to enjoy in Downtown San Diego but they are not well linked



San Diego Downtown Transit Alternative Plan

Win 4 The City is a Place of Chairs

- Chairs maximize the value of exchange space



San Diego Downtown Transit Alternative Plan

Win 4 The City is a Place of Chairs

- Chairs maximize the value of exchange space



San Diego Downtown Transit Alternative Plan

Win 4 The City is a Place of Chairs

- Chairs maximize the value of exchange space



San Diego Downtown Transit Alternative Plan

Win 5 The City is defined by its Arrival Points

- Creates and defines a memorable experience
- Sets the image of the city
- Portal to the city
- Opportunities to better optimize arrival points through access linkages and infrastructure

*Need to implement linkages
and infrastructure*



San Diego Downtown Transit Alternative Plan

23

Win 6 **The City is a Place of Movement and Connectivity**

- High quality and safe enjoyable pedestrian network
- Safe and attractive bicycle facilities linked to the regional network
- High quality transit is required to other regional centers and within downtown

The existing plan provides a good foundation for action



San Diego Downtown Transit Alternative Plan

24

Win 7 **The City is a Complex System of Interactions**

- Who is the Champion?
- Who needs to be part of the solution?
- How are you going to prioritize?
- Who is going to implement?
- What are the barriers?
- Who is accountable?

We will recommend methodologies and processes that engage the key stakeholders and will draw out the priorities for the plan



San Diego Downtown Transit Alternative Plan

Implications for San Diego

Requires:

- A commitment to sustainable transport and a target transit mode share objective
- A rebalancing of the city's exchange and movement space to support economic growth and vitality
- The adoption of an incremental approach that fully integrates transport and development
- Building on the existing transport investment



San Diego Downtown Transit Alternative Plan

Next Steps for the Team

- Refine our preliminary infrastructure and planning ideas to recommend an appropriate plan outline which will include suggestions to cost effectively:
 - Provide better pedestrian, bicycle and transit links
 - Increase rail and bus service
 - Manage parking demand to match the transit strategy
 - Increase exchange space
 - Link arrival points
 - Improve and manage mobility through and the broader use of innovative transport technology



San Diego Downtown Transit Alternative Plan

In Summary

- The *Community Plan* presents good principles and objectives and meets many of the seven deadly sins
- The key to regional prosperity is a strong downtown
- The transport strategy of the current plan implies an auto based solution that will jeopardize the economic well being of downtown
- The way forward is an achievable transit alternative plan



San Diego Downtown Transit Alternative Plan



San Diego Downtown Transit Alternative Plan



San Diego, March 19, 2008

“Go forth, with spirit, the civic vision, and the courage to build the city of your dreams.”



Alonzo E. Horton



McCormick Rankin International

Appendix E
Potential Funding Approaches

Appendix E – Potential Funding Approaches

- 1. Introduction E-1
- 2. Existing Funding Programs for Public Transit / Transportation E-1
 - 2.1. Federal E-2
 - 2.2. State of California E-3
 - 2.3. Regional/Local, San Diego Region of Governments, County E-4
- 3. Non-Fare Revenue Sources for Public Transit E-4
 - 3.1. Tax Revenue E-4
 - 3.2. Capturing Land Value E-5
 - 3.3. Supplementary Revenue Sources E-7
- 4. Summary E-7



1. INTRODUCTION

Cities across the US have traditionally relied upon federal and state level programs that provide grants and funding for transportation improvement, and in some instances, dedicated transit funds. Transit competes with roadways for a significant proportion of these funds which also have varying levels of support for capital projects and operating expenses.

The viability of a Complete Mobility Strategy for downtown San Diego will depend largely upon financial challenges for transit investment in the City. In the current context, Transnet, the local half-cent sales tax dedication administered by the San Diego Council of Governments (SANDAG), is one of the more significant sources of funding for transportation in the San Diego. However, this dedicated half-cent transportation sales tax which received a 40 year extension in 2004 only provides a one-third share of revenue dedicated to transit, and any increase requires a two-third voter approval.

The transit improvements associated with the Complete Mobility Strategy will require significant investment, both from capital and operating perspectives. Several cities including Dallas, Denver, Maryland and Chicago have recently attempted to address similar challenges by adopting new approaches to funding. To a degree, transit agencies in Portland, Denver, and the Bay Area have been successful in procuring revenue for transit by partnering with developers in the private sector. In other instances, municipalities have instituted innovative financing mechanisms such as assessment districts and tax increment financing for areas surrounding transit stations.

This document provides a high-level summary of funding programs and relatively more recent and innovative sources of revenue generation that the City of San Diego might consider as part of a financial strategy to support transit development in the downtown. The first section provides a brief overview of existing government programs available from federal and state sources to assist public transit capital and/or operations and maintenance projects. These are typically authorized by SANDAG.

The second section discusses other non-fare revenue sources that transit authorities and local jurisdictions have used to support public transit projects. It contrasts traditional tax revenue sources with more recent measures including land value capture tools (e.g., air rights development, density bonuses) and innovative financing mechanisms (e.g., transit districts, tax increment financing).

2. EXISTING FUNDING PROGRAMS FOR PUBLIC TRANSIT/TRANSPORTATION

Several funding programs at the federal, state and local levels provide financial assistance to capital and operating programs of public transit projects. Federal funds are sourced primarily from gas tax revenues, and in the State of California gas tax and sales tax provide the main sources of revenue for public transit infrastructure. San Diego has received funding from the federal New Starts program which provides capital assistance for transit, but revenue for operations and maintenance pose a greater challenge. As part of a broader strategy, the CCDC could investigate funding opportunities from specific federal programs associated with air quality improvement, access for people with disabilities, and transit provision for low-income populations in the city core. An overview of existing funding programs at the federal, state, and local level is provided below.

2.1. Federal

a. *Funding Sources:* US Department of Transport, Surface Transportation Board

b. *Administering Agencies:* Federal Transit Administration (FTA), Federal Highways Administration (FHWA), Caltrans, San Diego Association of Governments (SANDAG).

c. *Major Federal Programs:*

Program	Administering Agency	Amount	Description	Requirements
Large Urban Cities/Urbanized Area Formula Grant (Section 5307 of Federal Transit Act)	FTA	According to formula based on population, population density and bus service details (revenue miles, passenger miles, etc).	Available for transit planning, transit capital in bus and bus-related activities (replacement, overhaul & rebuilding of buses, construction of maintenance & passenger facilities), preventive maintenance, investment in new and existing fixed guideway systems, and paratransit service that complements the Americans with Disabilities Act (ADA)	Funding available to public bodies that are legally entitled to receive federal funds. A 20% funding match is required (17% for buses that meet CAA and ADA standards). SANDAG allocates these funds regionally and the program for which funding is sought needs to be consistent with SANDAG's Regional Transportation Improvement Plan (RTIP).
Bus and Bus Facilities Program (Sections 5309, 5318)	FTA	Discretionary	Capital assistance for new and replacement buses and related equipment and facilities. (includes purchasing of buses for fleet and service expansion, bus maintenance and administrative facilities, transfer facilities, bus malls, park-and-ride stations, bus rebuilds, bus preventive maintenance, passenger amenities and miscellaneous equipment.	Available to public bodies/agencies, and some public corporations/boards/commissions. Private companies in public transportation and private not-for-profit organizations can be sub-recipients of these funds if approved by direct recipient. Project needs to be consistent with SANDAG RTIP, and SANDAG acts as a grantee in specific cases.
Transit Capital Investment Program. - * Major Capital Investments (New Starts & Small Starts) and Rail and Fixed Guideway Modernization), Section 5309 Under Revision	FTA	Discretionary	Capital Assistance for new and replacement buses and facilities, modernization of existing rail systems, and new fixed guideway systems (New Starts).	The minimum legal match by the applicant is 20%. Project needs to be consistent with SANDAG RTIP, and SANDAG acts as a grantee in specific cases.
Surface Transportation Project (STP)	FHWA/Caltrans	\$6473M for 2008 and \$6577M for 2008	Flexible funding federal highway projects, transit capital projects, intracity and intercity bus terminals and facilities, and bridge projects on local roads.	20% match required. Distributed to states and through them to regional transportation authorities. SANDAG allocates this funding.
Congestion Mitigation & Air Quality (CMAQ) Improvement Program	FHWA/Caltrans	\$8.1 million for California in 2003	Funding for surface transportation and other related projects that contribute to air quality improvements and reduce congestion. Transit improvements have been approved in cases where substantial changes to transit facilities have been deemed to reduce emissions by increasing ridership (but not available for routine capacity expansion).	SANDAG approves projects and serves as grantee.



Job Access & Reverse Commute Program (Section 5316)	FTA	\$727 M for fiscal years 2006-2009, grants based on formula which accounts for number of low income persons.	Funds transportation programs that offer job access and reverse commute services for low income individuals who may live in the city core and work in suburban locations.	States and designated recipients select grantees. SANDAG works as a grantee for non-FTA eligible recipients. Project has to be included in a locally-developed human service transportation coordinated plan.
New Freedom Program (Section 5317)	FTA	Formula based upon percentage of people with disabilities	Funds capital and operating expenses for transportation facilities and services improvement that addresses the needs of people with disabilities, above those in the ADA.	SANDAG approves projects and serves as grantee. Project has to be included in a locally-developed human service transportation coordinated plan.
High Priority Demonstration Projects	FHWA/Caltrans	Discretionary	Funding for transportation projects of special importance to members of Congress	Project needs to be consistent with RTIP, SANDAG can apply for funding and grant it to other recipients

2.2. State of California

a. *Funding Sources:* Transportation Improvement Fund (TIF) which provides \$1.5 billion statewide annually [and includes the State Public Transportation Account (PTA), State Transportation Improvement Program (STIP), and allocation to cities/counties] and California Transportation Commission Funds.

b. *Administering Agencies:* Caltrans, San Deigo Association of Governments (SANDAG).

c. *Major State Programs:*

- **State Transit Assistance (STA) Fund and Local Transportation Fund**
Both these state funds are to develop/support public transport needs and are available for transit capital and operations. They are allocated to on the basis of population, taxable sales and transit performance.
- **State Transportation Improvement Program (STIP)**
 - *Regional Improvement Program (RIP):* Includes capital funding and funding for rail transit improvements. Includes all Commission approved RTIPs that are developed by Regional Transportation Planning Authorities (RTPAs) and the Metropolitan Planning Organizations (MPOs).
 - *Interregional Improvement Program (IIP):* Developed by Caltrans in consultation with RTPAs and MPOs, this program includes funding for intercity rail expansion/interregional transport expansion and other significant transportation projects.
- **Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA)**
PTMISEA is comprised of \$3.6 billion dollars available to transit operators over a ten-year period. Funds are to be used for Public Transportation Modernization, Improvement and Service Enhancements that can include upgrading transit fleets or expanding service to increase ridership and therefore reduce emissions and energy use by reducing the number of single occupancy trips. The \$3.6 billion is to be distributed by formula, based on population and fare-box revenue, to transit operators for capital projects.
- **Transit and Rail Capital Funding from CTC**



The California Transportation Commission (CTC) approves projects nominated by Caltrans and Regional Authorities (SANDAG) for funding. CTC funds come from a combination of sources which include the STIP Rail Funds, Traffic Congestion Relief Fund, Prop 116 Rail Bond Account, and Federal Transit Aid. These funds are allocated by the CTC for intercity rail, commuter rail, urban rail (the San Diego trolley is listed as an example using this) and other transit. The last includes buses, ferries, intermodal terminals and maintenance facilities.

2.3. Regional/Local - San Diego Association of Governments, County of San Diego

a. Funding Sources: State Transit Assistance, County Local Transportation Funds (LTFs) - largely through general sales tax revenue, county sales tax measures, and other local funds i.e. fares/property tax/ private/joint development.

b. Administering Agencies: San Diego Association of Governments (SANDAG).

c. Major Regional/Local Programs: Transnet (funding transportation through a half cent voter-approved sales tax increase) is available to both the RPTA and transit operators to fund transit capital and operating projects. Also funds operations of new service along TransNet-funded corridors.

3. NON-FARE REVENUE SOURCES FOR PUBLIC TRANSIT

Outside California where a share of sales tax is the main source for transportation funding, a greater variety of tax based funds are being used to fund transit infrastructure projects. The first part of this section provides an overview of other such tax sources. However, it is likely that policy and legislative changes may be required to make such non-fare revenue sources available specifically for public transit at the state or county level, a discussion of which is beyond the scope of this review.

The second part of this section focuses on the local level, and particularly on land value mechanisms that the City of San Diego and the public transit service provider San Diego Metropolitan Transit System (MTS) could lever to finance transit improvements. It reviews land use and financial tools that have proven successful in other US states. Collaboration between public transit agencies/local municipalities and private sector partners has recognized the potential increases in the value of land surrounding transit stations that either exist or are being developed as mixed-use areas. These public-private partnerships and joint venture developments are supported to a degree by high-level federal programs. However, their success is largely dependant on the appropriate use of a combination of tools (e.g., air rights development, density bonuses, tax increment financing, local parking tax revenue, etc.) and the receptiveness and support of local municipalities that have authority over land use issues.

3.1. Tax Revenue

Gas tax has been a significant source of funding for transportation (including transit) at the federal and state levels in the US as well as other countries. The State of California obtains funding for its transportation projects from fuel tax, truck weight fees, motor vehicle fees, and sales tax as well as the aforementioned dedicated sales tax for transportation. At the local level, property tax has also been used to generate transit revenue, but to a lesser extent than gas and sales tax.

a. Traditional Approach

- The State of California authorizes counties to institute voter-approved 40-year temporary “self-help” sales tax increases up to 1% for transportation purposes. Through the SANDAG-administered Transnet program, San Diego currently avails of a voter-approved ½ % sales tax for transportation, one-third of which is dedicated to transit.

b. Alternative Approach



- Within the State of California, BART counties (i.e., Bay Area Rapid Transit that serves San Francisco, Alameda, Contra Costa), San Mateo, Santa Clara, and Santa Cruz have instituted “Transit Districts ½ percent permanent sales tax” measures. With the exception of Santa Cruz, these counties also avail of the temporary “self-help” sales tax.
- In a number of other US states, transit also receives revenue from tax and government fee sources including:
 - *local options gas tax* (Florida) allows local governments in Florida to implement up to 11 cent per gallon on local gas tax for transportation purposes including transit.
 - *motor fuel excise tax* (New York MTA, Connecticut, South Carolina, Tennessee, Virginia, Wisconsin)
 - *vehicle registration fees* (Florida, Delaware, Wisconsin, Michigan)
 - *driver license fees* (New York MTA)
 - *oil company tax* (Connecticut)
 - *sales tax levies on automotive related items* (Michigan)
 - *non-highway use fuel tax* (Oregon)
 - *auto rental tax, vehicle lease tax* (Pennsylvania)

However, the two-third voter approval clause poses a significant challenge to instituting new tax measures to support transit.

3.2. Capturing Land Value: Public-Private Partnerships and Transit Joint Development

Transit agencies in the US and around the world have sold or leased land in proximity to transit stations and along transit routes to generate revenue for capital and operating expenses. Aimed at capitalizing upon the potentially high values of land near transit facilities (and within downtowns), the newer aspects of this approach move towards public-private partnership whereby private sector partners may share capital costs with the transit agency or make direct financial contributions to the transit agency. Density bonuses (including air rights development), concession leases (to developers on transit facility land), connection fees to transit stations, and direct land sales of prime real estate in proximity to transit facilities are measures that have recently been used to generate revenue for transit agencies. Such development is typically reliant on municipal coordination and approval, since zoning by-law amendments are required to change zoning and density requirements.

In California, public private partnerships have played a significant role in shaping public transit infrastructure in the Alameda Corridor. For instance, the BART Pleasanton Station was completed through a combination of up-front developer contribution to the project and bonds issued to fund the station.

The Mass Transit Railway Corporation Limited (MTRCL) in Hong Kong owns and operates the city’s subway system. It is also actively involved in the development of key residential and commercial projects above existing transit stations and along new line extensions as well as many other commercial activities associated with the railway. The most recent of such developments was a large shopping centre extended from a new subway station. The MTRCL is also involved in the leasing retail and poster advertising space, bank machines, and personal telecommunication services. It also provides consultancy services to other transit operators worldwide.

While such successes display the potential to fund transit by capitalizing upon land values, they have been possible where transit agencies and operators have ownership of significant land holdings that are available for development. The lack of significant land holdings by transit operators in downtown San Diego limits obvious opportunities to redevelop land. However, MTS with cooperation from the municipality could investigate the revenue-generating benefits that can be achieved through providing developers with density bonuses and air rights concessions on land where transit stations are located. These are contrasted with more established sources of revenue below.

a. Traditional Approach

The more established means of generating funding for transit through land development have involved ground leases or sale of land owned by transit agencies in highly-valued locations to developers. To some extent, revenue generation from parking spaces has also provided revenue, although parking site tax has provided a relatively more substantial source of income than parking fees.

- Land Sale
- Lease Income
- Parking Fees/Tax: Parking fees and parking site tax have provided revenue for transit agencies in Australia (Sydney, Perth, Melbourne), and Canada (Vancouver's Translinks). Typically, parking tax is applied to non-residential parking. In Pasadena, California, the municipality established a Parking Metre Zone wherein on-street parking was priced and the resulting revenue invested in downtown improvement.

b. Alternative Approach: Transit Districts & Tax Increment Financing (TIF)

Recently, designation of **transit districts** has also been used as a tool to capitalize on high land values surrounding transit stations. This approach has relied on land use tools including density bonuses and air rights concessions (below) as well as financial mechanisms including special property taxing within such districts, tax increment financing, and tax exempt debt for development. In most successful cases, revenue generation has stemmed from a combination of these tools at different stages of development as opposed to reliance on any particular one.

Land Use Mechanisms

- *Density Bonuses*

Prime land in the downtown core is typically subject to zoning restrictions imposed by local municipalities. The grant of density bonuses has been used to charge higher developer fee and other associated charges, thus generating revenue for transit projects while simultaneously serving to increase development and the resulting ridership base around transit stations. For instance, in Mountainview, California, the municipality designated a Transit Overlay Zone that permits high density development within a 2000 foot radius of the station.

- *Air Rights Concessions*

Similar to the concept of providing density bonuses, air rights development can be used to capitalize upon private developer demand for highly valued land. Recently, transit authorities have employed this mechanism to generate long term revenue by leasing land owned by them above and around transit stations. The Bethesda, Maryland Metro Centre is an example of transit joint development whereby an office-hotel-retail project constructed above the Metrorail Station generates air rights rent to the transit agency.

Financing Mechanisms

- *Equity partnership in land development*

The instances of the Contra Costa County Redevelopment Agency and the City of Albuquerque illustrate the potential for public agencies to redevelop surplus well-located land owned by them in collaboration with private partners, thus generating a revenue source to finance public infrastructure.

- *Assessment districts*

In Washington, Portland, Santa Clara County and Contra Costa County, assessment districts have provided a source of revenue for transportation authorities and municipalities to fund the capital cost of transit infrastructure as well as ongoing operating expenses. Local jurisdictions have designated such areas as 'special property taxing districts' wherein property owners pay extra taxes based on the benefit of their properties would receive because of their proximity to transit stations.

- *Tax Increment Financing*

Tax Increment Financing (TIF) is an established process in California and refers to the mechanism by which the increase in property tax resulting from redevelopment of the area is channeled to finance public infrastructure. Most US states including California have authorized TIF mechanisms, and revenue thus generated is typically received by the Redevelopment Agency undertaking the redevelopment. Although TIF has been used for redevelop blighted areas in San Diego, the revenue thus generated has been used for overall public infrastructure improvement as opposed to the case of Chicago where TIF has channeled to fund public transit capital projects (but not operational expenses).

3.3. Supplementary Revenue Sources (Congestion Pricing, London, England)

In 2003, the City of London instituted a congestion charge on vehicles entering the downtown. Established primarily to reduce traffic congestion in the city core, the initiative generates revenue for the municipality and could be considered in a larger scheme to reduce auto-dependence in San Diego. *However, assessments of the London Congestion Pricing Scheme maintain that congestion pricing should not be considered as a primary source of revenue, but can be useful to complement an existing public transit system that sufficiently accommodates the travel needs of residents and is supported by strong ridership.* In the case of the City of San Diego, it may be most timely to consider such a measure to supplement revenue for operating expenses once extensive capital projects have been completed.

4. SUMMARY

Opportunities to generate revenue through land development and innovative financing mechanisms may hold the potential to address downtown San Diego's transit funding challenges to a great degree. However, as with most new initiatives, new sources of transit funding will require public agencies including SANDAG, the City and MTS to work together to control land use and implement financing schemes that provide directed incentives for developers, businesses and residents before these stakeholders recognize the benefits offered by transit use and transit intensive areas and begin to support them.

Notes:

The data used to complete this review are researched using public domain sources only. Hence, the data have not been independently verified or confirmed. This review is not intended to be exhaustive and is designed to provide a high-level overview only.

Appendix F

Phasing of Downtown Development

Appendix F – Phasing of Downtown Development

Introduction F-1

Vancouver, BC, Canada F-1

Minneapolis, Minnesota F-3

San Francisco, California F-4

Portland, Oregon F-6

Application to San Diego F-8

Introduction

The following four case studies outline the efforts of four cities to tie together the pace of development and the expansion of transportation capacity in Downtown areas. All are major cities that have experienced substantial growth within their downtown areas over the past several decades:

- Vancouver, British Columbia, Canada
- Minneapolis, Minnesota, USA
- Portland, Oregon, USA
- San Francisco, California, USA

Although the approaches to this issue are varied, the principal of concurrency between transportation capacity and development permissions was a constant – although concurrency means different things in different cities. Whether a particular city's efforts are “successful” can be judged by the reader; however, each of the case studies is instructive as they highlight the manner by which transportation has been tied to land use.

Vancouver, BC, Canada

Vancouver is an example of successful modal shift even amid very rapid growth. Three key plans played significant roles – the City of Vancouver's *Downtown Transportation Plan* (1997), and the *City Centre Plan* (1991), and the Greater Vancouver Regional District's *Liveable Region* plan,

The Downtown Transportation Plan was innovative and ambitious in setting modal share targets for active transportation and transit. It was based in a series of strong measures, including limiting overall road capacity to the 1997 levels even as the Downtown grew, while investing in the walking, cycling, and transit networks.

As noted in the case study, with only 5 percent of the City's land area, the downtown now has 13 percent of its population, 39 percent of its jobs and 21 percent of its trip destinations indicating a strong live/work connection. Vancouver's Downtown has experienced growth in residents and in jobs, creating an efficient, high-density, mixed-use center – the core reason for the success of the DTP. Trips to Downtown have increased 23% in ten years, yet vehicles entering and leaving the Downtown Central Business District have decreased by 7%. New trips to Downtown have been by transit, cycling and walking. In particular, walking has become the fastest growing and most important way of getting around the Downtown.

Growth downtown was monitored through a collaborative relationships between the upper and lower tier authorities in Vancouver: the Greater Vancouver Regional District (GVRD) is the regional authority with responsibility for regional planning, public transit, and a series of other services, and the City of Vancouver is the local authority with responsibility for planning approvals and city planning.

The relationship is a co-operative one in terms of linking regional and city planning and transportation investment and capacity. The process of monitoring and linking transportation investment and development planning occurs through annual modeling of the Region's transportation network, using land use inputs (population and employment) developed by the City of Vancouver, based on the current pace of development. The GVRD and its transit authority, TransLink, use the modeling to determine if additional capacity is warranted on transit lines.

As such, when zoning changes are requested in Downtown, the City will request Regional modeling of the impacts on transportation. The same approach is being used to test the transportation implications of different development scenarios as part of a new plan for the Downtown and surrounding area, called the Metropolitan Core Jobs and Economy Land Use Plan. As part of this plan, the City is asking the GVRD to model a series of zoning scenarios for further intensification in the core area – with a focus on office and commercial development to balance the rapid growth in residential development in recent years.

This comprehensive planning is part of the reason for Vancouver's success. The new Metropolitan Core plan is intended as “a comprehensive study that will help determine how we use our land in the future to accommodate business growth, economic activity, and transportation needs in the city” This is significant in its linking of transportation needs and economic growth. The plan will include policies that “will guide how much, where, and what types of land supply and zoning would be best for supporting the economy and its transportation and infrastructure needs”. The objectives of the plan are to:

...project what our needs might be in the future, and whether these needs fit with the current zoning and land use and transportation supply. This information will help us create a policy plan that may confirm existing zonings in

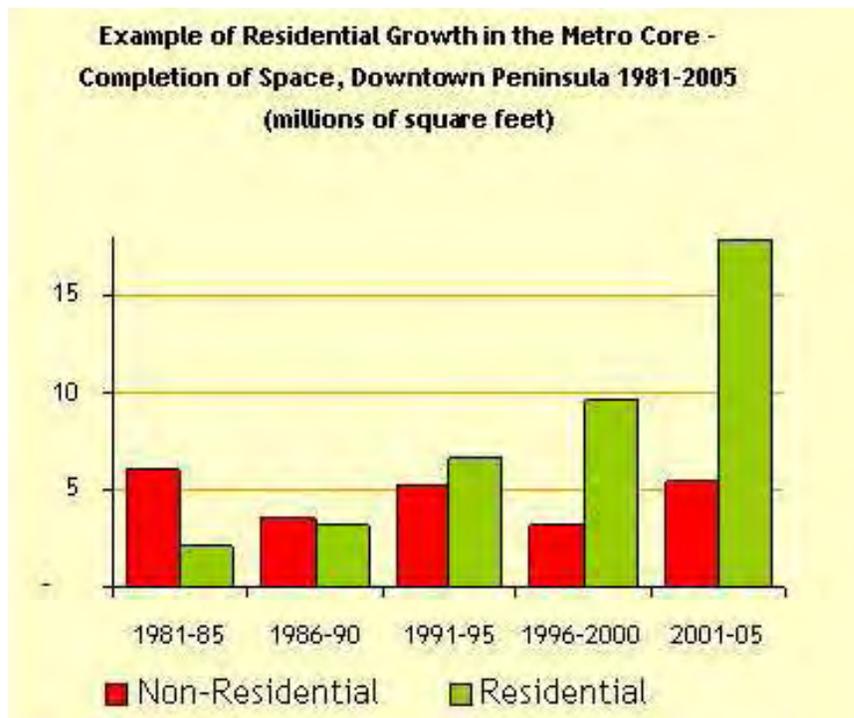
some areas of the Core and/or set directions to change zoning and land use in other sub-area, to better support business, transportation, and other infrastructure, while providing economic and job opportunities and goods, services, and activities for our citizens.

These principles establish the link between transportation capacity and the phasing and location of development.

Interestingly, the transportation/land-use relationship remains a responsive one – the pace of development is used to determine required levels of change in service, rather than transit being implemented and growth being focused around areas of accessibility, such as station areas. The development comes first.

Vancouver’s success is also due to strong focus on walking. With a 12-month walking season and relatively temperate climate, the City has been able to create a much stronger share of active transportation by locating high density housing and high density office uses in relative proximity on the Downtown peninsula.

The chart at right gives a sense of the impact of the “condo boom” in Vancouver – which has brought thousands of new residents into the core over the past ten years. The straightforward approach was to enable people to walk to work; in the words of a Vancouver planner – “people still love their cars in Vancouver, but they are able to walk to transit and to jobs in the core, so why wouldn’t they?”



Minneapolis, Minnesota

Minneapolis, Minnesota has a resident downtown population of 20,000 people and a workforce of over 140,000 people. The City of Minneapolis Comprehensive Plan (2000) along with area specific plans guide land use within the City's downtown. Transportation within the City core is planned and operated by the Metropolitan Council, which is a regional planning agency for the twin cities of Minneapolis-St. Paul (and surrounding metropolitan area) as well as the operator of the primary transit provider – Metro Transit.

Over the past 10 years, the City of Minneapolis and various partner agencies have embarked on a number of proactive strategies to enhance development within the City's downtown core as well as dramatically improve the movement of people and goods throughout this area. In March of 2000 the City of Minneapolis Comprehensive Plan was adopted. Shortly thereafter, a multi-agency group under the umbrella of "Access Minneapolis" was formed to implement the policy directives of the Comprehensive Plan within the City's downtown area.

Access Minneapolis includes representation from the City of Minneapolis Community Planning and Economic Development Department, Public Works, Metropolitan Council - Metro Transit, Hennepin County and the Minnesota Department of Transportation. The group consists of both a Core Project Management Team and Steering Committee. Since its inception, the group has studied and produced 4 key documents to inform planning decisions and improve transit options within the City:

- 1) Downtown Action Plan, June 2007
- 2) Citywide Action Plan, September 2007
- 3) Streetcar Feasibility Study, December 2007
- 4) Street and Sidewalk Design Guidelines, February 2008

The Downtown Action Plan builds on the policy directives of the Comprehensive Plan, which identifies the downtown as a unique Activity Center with unique transportation needs. The Action Plan focuses on both transportation planning and infrastructure planning for the downtown and includes a range of short and long term recommended actions to implement the Plan's recommendations. These recommendations include a number of tangible, discreet tasks, which collectively respond to the identified policy directives.

Although the City of Minneapolis has just released a new draft plan that will eventually replace the current Comprehensive Plan, the Access Minneapolis group continues to meet regularly as an internal staff group. The role of the group now includes monitoring and managing the implementation of the Downtown Action Plan recommendations. This includes updating task completion, re-evaluating and prioritizing projects, as well as coordinating capital budgets in the short and long term.

In July 2002, in preparation for the completion of the City's first Light Rail Transit System, the City of Minneapolis adopted the East/North Loop Master Plan to amend the City's Comprehensive Plan. The East/North Loop Master Plan added Transit Station Areas (TSA's) as a land use category and provided a policy basis to recognize that such TSA's provide unique opportunities for higher density residential and employment uses as well as the associated services that complement these uses. Metropolitan Council report that:

"(As of March 2007) The Hiawatha Line has proven to be a powerful catalyst for development in a corridor that once had large tracts of vacant and underutilized land. Since 2000, nearly 7,700 new housing units have been built along the line, with another 8,100 units planned by 2010."
<http://www.metrocouncil.org/transportation/lrt/lrt.htm>

Monitoring of the capacity of the Hiawatha line in terms of ridership and demand has primarily been done by Metro Transit, by assessing building permits and planning approvals issued. In response to the increased demand for service along this line, 3 new light rail cars will be added to the existing fleet in March 2008. Funding is also in place to begin construction on at least one additional new light rail line with others planned to follow.

However, in general, Minneapolis's development approval process does not consider transit capacity. Instead, at a higher strategic level, development and transportation capacity is planned for through a regional policy review/update, now in progress by Metropolitan Council, who also are responsible for allocating funds for transportation. Currently the Metropolitan Council is in the process of completing a major strategic update – the "2030 Transportation Policy Plan".

San Francisco, California

The San Francisco Bay Area currently has a population of approximately 7 million people and supplies more than 3 million jobs. The area is projected to grow by almost 2 million people and one and half million jobs by 2030. Trends indicate that population and employment growth will primarily occur through infill development in the urban core and will be concentrated within the areas 3 major urban centres (San Jose, San Francisco and Oakland) of the Bay Area.

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating and financing agency for the nine county San Francisco Bay Area. It is responsible for regularly updating the Regional Transportation 2030 Plan and functions as the funding agency allocating both federal and state funding for transportation projects. The Transportation 2030 Plan (2005 and updated 2007) is a strategic document to guide the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. The policy directives of the MTC are supported by extensive population and employment modeling. MTC works closely with the Association of Bay Area Governments (ABAG), which is the area's official comprehensive planning agency for the San Francisco Bay Area, local municipalities, and transit operators. Every 10 years, MTC updates information on personal travel behaviour in order to project travel patterns relative to population and employment projections.

The same year that the MTC adopted its Transportation 2030 Plan, it also adopted a Transit-Oriented Development (TOD) Policy for Regional Transit Expansion Projects. Key among the objectives of the TOD policy are to improve the cost effectiveness of regional transit expansions by promoting live-work communities at transit supportive densities. The policy influences decisions by local jurisdictions, transportation agencies, public and private sector development. The policy is tied to applications for funding and applies only to physical transit extensions and not level of service improvements that do not physically extend the system. There are 3 key elements of the TOD policy:

- 1) Corridor level thresholds to quantify appropriate minimum levels of development around transit stations along new corridors;
- 2) Local station area plans that address future land use changes, station access needs, circulation improvements, pedestrian friendly design, and other key features in a transit oriented development; and,
- 3) Corridor working groups that bring together CMA's, city and county planning staff, transit agencies, and other key stakeholders to define expectations, timelines, roles and responsibilities for key stages of the transit project development process.

Currently, San Francisco is undertaking an ambitious redevelopment plan of the existing Transbay Transit Terminal located in the city's downtown core. The redevelopment of the new Transit Centre and its associated components on the 40 acres site, is a joint agency undertaking of the Transbay Joint Powers Authority (TJPA), City of San Francisco, and the San Francisco Redevelopment Agency with input from MTC and other agencies. The new Transbay Transit Centre will accommodate more than 45 million passengers annually and create 28,000 jobs including Transit Center employees, new transit rider jobs, and jobs supported by direct and indirect sales to these new employees and riders.

Phase 1 of the project is anticipated to be completed by 2014 with final completion targeted for 2018. The Transbay project includes 3 main components:

- Transbay Transit Centre – a new transit centre that will centralize the area's regional and multi-modal transportation network and provide connections within a single facility to 8 transit systems including AC Transit, BART, Caltrain, Golden Gate Transit, Greyhound, MUNI, SamTrans, and the future high speed rail from San Francisco to Los Angeles;
- Downtown Rail Extension – an existing rail line will be extended to provide Caltrain and the future High Speed Rail access to the new downtown Transit Center; and,
- Redevelopment Area – the City of San Francisco adopted the Transbay Redevelopment Plan (2005) and Transit Centre District Plan (ongoing – not yet completed) to redevelop lands surrounding the new Transit Center from parking lots and bus ramps to a new transit oriented community including 3,400 new homes, 1.2 million square feet of new office, hotel, and commercial uses as well as 60,000 square feet of retail in addition to the retail component of the Transit Centre.

In response to the proposed redevelopment of the Transit Centre in the downtown core, the City of San Francisco reviewed development assumptions within the Transit Centre Program to determine the appropriate planning response to the location of the new facility. The result will be the Transit Centre District Plan. Early assessments have concluded that densities can be maximized by raising height limits and increasing development potential and would be consistent with the City's vision for the Transit Centre District. The development generated by the increased densities will also generate funding to be applied to the redevelopment of the Transit Centre through increased tax increments, land sales, and assessments. At least one (and likely more) high-rise tower "Transit Tower" is contemplated to be constructed by the private sector adjacent to the new Transit Centre in fulfillment of these objectives.

According to Ted Droettboom, Regional Planning Director, Association of Bay Area Governments, "the pace of development and transportation capacity are very imperfectly matched through the Regional Transportation Plan (RTP) process. Development is monitored and forecast through population and employment forecasts, which are input to a regional travel model. The travel model forecasts travel behavior and traffic conditions based on the relationship of land-use and transportation capacity." However, Mr. Droettboom went on to note that the Region has focussed investment on transit, and through the extensive TOD planning regime, is targeting higher density development in both new expansion areas and in station areas on the existing system.

San Francisco staff noted the following, in terms of ensuring that the pace of development matches transportation capacity:

- monitoring of transportation capacity is done primarily by the MTC (which also allocates transportation funding to the lower tier municipalities) at a very strategic level
- analysis of development and transportation / transit capacity is done as part of various "Station Area Plans" (equivalent of Secondary Plans) that are completed for major transit hubs and transit corridors
- the greater San Francisco area has a multi-modal transportation network that is operated by 8 different transit companies and includes bus, rail and ferry services
- as part of the recent Transportation Plan Update, MTC has identified if the existing transportation threshold is met with current development
- individual capacity and service levels are routinely monitored and responded to by each of the 8 transit companies operating within the area

Portland, Oregon

The City of Portland has an almost 40 year history of strategies to plan for the City's core. Decisions in the 1970's set the stage to establish the downtown core as the main transportation hub for the Portland Metropolitan Area. The transit system within the Portland area is primarily operated by TriMet which provides transit services via buses, the MAX light rail system, commuter rail, streetcar and the Portland Aerial Tram. The accessibility of the downtown core and the efficiency of transportation alternatives to travel downtown and move within it, have been designed to encourage a pedestrian friendly alternative. Some of the key infrastructure elements of this system include:

- Transit mall – core hub where buses and light rail lines converge
- “Fareless Square” at centre of the City within which transit services are offered for no fee
- SmartPark – 7 City owned parking lots offering free 2 hour parking with purchase from qualifying downtown business of \$25 or more

The City of Portland has long recognized the symbiotic relationship between land use and transportation planning:

“...aggressive and innovative land use and transportation strategies are needed to support a sustainable, healthy economy and pedestrian friendly environment.” (City of Portland Bureau of Planning, Central Portland Plan Assessment, April 2008)

“Growth in central Portland has gone hand in hand with the evolution of its transportation system.” (City of Portland Bureau of Planning, Central Portland Plan Assessment, April 2008)

Currently, the Central City Plan (1988) provides the policy basis for development within the Central City Area. The City is now in the process of drafting a new “Portland Plan” which will replace the existing Comprehensive Plan (1980) and the Central City Plan (1988). As part of this work program, the City has completed the Central Portland Development Capacity Study in April of 2007 and more recently, the Central Portland Plan Assessment (April, 2008). The City recognizes multi-modal transportation as being key to stimulating continued growth in the central city area in the form of high density pedestrian oriented development.

Transportation planning for the Portland area is provided by the City of Portland Office of Transportation. The Central City Transportation Management Plan (1995) is the current policy document that guides transportation improvements in central Portland. It outlines land use, transportation and parking objectives to implement the 1988 Central City Plan's broad goals of significant economic and residential growth in downtown and the central city. In the summer of 2007, the City's Office of Transportation launched an update of the Central City Transportation Management Plan to coordinate with the update of the Central City Plan being undertaken by the Bureau of Planning. The existing Central City Transportation Management Plan is designed to focus growth in the Central City, develop transportation and parking management strategies for each district of the Central City, support transit and other alternative travel modes, promote housing as a transportation strategy, and support regional air quality policies.

As the primary transit provider within the Portland area, TriMet takes an active role in working with the City of Portland to encourage transit oriented development and develop criteria for expanding transit service. In June 2002, TriMet adopted its first “Transit Investment Plan” (TIP). This Plan identifies, “strategies and programs to meet regional transportation and livability goals through focused investments in service, capital projects, and customer information.” (TIP, 2008) The Transit Investment Plan is a rolling five year plan that is updated annually.

TriMet's Transit Investment Plan is reviewed and updated annually to monitor development levels and identify where services need expanded and improvements or upgrades to the existing system undertaken. According to TriMet staff, the transit agency monitors and allocates capacity based on land use in a series of ways:

- 1) *TriMet uses the extensive population and land use modelling completed by Metro Council - a regional level Metropolitan Planning Organization (PMO) that is responsible for regional land use planning (2040 Growth Concept) and allocation of transportation funding as well as the regional 2004 Transportation Plan;*
- 2) *TriMet provides input to the City of Portland planning process by providing technical expertise to the development of area specific plans (ie. along a light rail corridor). TriMet will advise the City of existing transit capacity in areas of planned development and identify thresholds above which, an expansion or improvement to the existing system would be needed;*

- 3) *TriMet routinely undertakes additional modelling as part of the application process for funding of new projects. In doing so, it reviews existing land uses, existing development potential in accordance with the zoning applied to the subject area and calculates the potential demand and capacity for the area;*
- 4) *TriMet monitors ridership statistics very closely and makes adjustments to service levels twice a year in response to the ridership data. Due to budget restrictions, often low performing lines are eliminated in order to move additional capacity to areas of higher demand.⁴*

⁴ Source: Jillian Detweiler, TriMet planning staff

Application to San Diego

A Complete Mobility plan will require some new thinking with regards to development. Achieving the modal split targets will be a substantial challenge without a focused effort to drive up densities in transit corridors. However, the additional transit capacity that is identified in the Complete Mobility plan can create a basis for increased development in key corridors. The positive relationship between increased densities and transit ridership will be reinforced by phasing development in a manner that links capacity expansions and density.

To this end, San Diego might consider some best practices from other North American cities to operationalize the transit plan. Key among these would be developing and adopting a new monitoring framework in the City Centre to support strong links between expanded transit capacity – indeed, all modes of transportation - and the pace of development.

Without question, ongoing modeling efforts need to be part of the phasing and monitoring solution. Annual modeling updates that test planning scenarios (proposed and planned development) against transportation capacity can help to inform transit capacity expansion decisions, while simultaneously providing a check to make sure development is not running ahead of capacity. As in Vancouver and Portland, co-operative efforts by transportation planners at different levels of government can establish a stronger co-ordination between transit service levels and phasing of development. Three of the four case study cities conduct annual review of transportation-land use capacity through modeling, and in our experience this is a best practice, although not common in all cities.

For example, while SANDAG and CCDC conduct five-year reviews to ensure transportation capacity is sufficient to meet levels of development, this is primarily focused on roads. Transit capacity monitoring should also be a focus of these reviews and, should occur on an annual basis if possible. In general, a more frequent monitoring process that focuses on all aspects of transportation capacity, not only roads and traffic, can help to ensure network capacity across modes exists or will exist at the time of development.

The reviews should also consider more than just responding to development, but instead, consider how development and transit capacity can occur together. A key strategic issue to consider is the timing of transit service level expansions – will they happen after development, when demand has been generated, or will they lead development, in order to create additional transportation capacity and stimulate investment. This difficult question has been answered in different ways in different cities, but requires a decision regarding the degree to which a city is willing to invest in advance of demand in order to shape land use – a proactive, rather than reactive approach, but one which some transit agencies blanche at, due to the costs and risks associated with doing so. Often, it is a difficult balancing act of introducing service at the right time to both react to and stimulate development.

Vancouver's example suggests that development phasing should also be influenced by an emphasis on walking. In this city, development with a strong pedestrian focus, which can support a higher percentage of trip-making without the need for cars, is expedited. Investments in the pedestrian realm – ensuring that walking is attractive, safe, and convenient – can support development. Where a particular project or district has the capacity to support higher rates of pedestrian trips, it can be prioritized over auto-dependent areas. The success of this approach is through monitoring and phasing of development that considers all modes of travel – cars, transit, and active transportation, through a frequent review of development impacts.

SANDAG's Smart Growth Concept Map is a forward thinking initiative which, through integration in the 2030 Transportation Plan, provides a framework for linking land use and transportation capacity in the long term. A monitoring framework can build on this framework, identifying progress toward the Plan's objectives and assessing factors such as the location, type, and scale of development, the share for each mode of transportation, and the implications for both land use decisions and transportation service decisions. In this way, progress toward the long-term vision for the Downtown can be achieved.