CREATING AND APPLYING A NEW MODEL FOR INFRASTRUCTURE INVESTMENT

A Study Conducted for Hennepin Community Works by the State and Local Policy Program of the Hubert H. Humphrey Institute of Public Affairs of the University of Minnesota with funding from the Federal Transit Administration

The Humphrey Institute of the University of Minnesota is hospitable to a diversity of opinions and aspirations. The Institute does not itself take positions on issues of public policy.
Creating and Applying a New Model for Infrastructure Investment

Executive Summary

Under the sponsorship of Hennepin County and the Federal Transit Administration through the leadership of Congressman Martha Sabo, the Humphrey Institute's State and Local Policy Program (SLPP) has continued a number of studies related to certain transportation issues.

This study examines how infrastructure investment could be developed.

This study attempts to apply the research and development to further develop the framework in the context of a particular transportation policy issue: transportation demand management. The Humphrey Institute's SLPP with the County's consent was conducted in cooperation with Hennepin County and based on the following objectives:

1. Allow the research team to apply the newly developed tool to specific conditions.
2. Allow the research team to apply the newly developed tool to specific conditions.
3. Allow the research team to apply the newly developed tool to specific conditions.

April 2001

Project Team

State and Local Policy Program

Lee W. Munnich, Jr., Senior Fellow and Director
Ken Kriz, Assistant Professor
Barbara Rohde, Research Fellow
Frank Douma, Research Fellow
Emily Kuhn, Research Assistant
Chuck Marohn, Research Assistant
Chad McCauley, Research Assistant
Andy Mielke, Research Assistant
Laura Olson, Research Assistant
Will Schroeder, ICF Consulting
Mara Krinke, ICF Consulting

Claremont Graduate University

Tom Horan, Executive Director
Grant McMurry, Research Associate

Project Sponsor

Federal Transit Administration
Hennepin County
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The project team wishes to acknowledge the work of Dan Marckel and Jeff Miller of the Design Center for American Urban Landscape as able partners in conducting a number of tasks in this study. Their ability to provide a vision for the physical redevelopment of Highway 81, along with the opportunity to coordinate work with the various elected officials, planning commissions, and business leaders that make up the cities along the corridor, proved to be invaluable. The feedback that they helped us receive from these communities allowed the project team to better assess the needs and desires of the neighborhoods as we continued to apply and develop the framework.

The State and Local Policy Program Project Team
Creating and Applying a New Model for Infrastructure Investment  
State and Local Policy Program

Executive summary

Under the sponsorship of Hennepin County and the Federal Transit Administration through the leadership of Congressman Martin Sabo, the Humphrey Institute’s State and Local Policy Program (SLPP) has conducted a number of studies related to urban transportation corridor redevelopment. The first study, in 1997, indicated a need for an integrated approach to transportation and community economic development. Building upon this first project, a second study examined how a model planning and financing framework for infrastructure investment could be developed.

This study attempts to apply the lessons of the first two studies and further develop the framework in the context of a particular transportation corridor redevelopment project. The Hennepin County Highway 81 (CSAH 81) corridor was selected in conjunction with Hennepin County staff based on the following criteria:

1. Covers multiple Hennepin County jurisdictions,
2. Allows the research team to apply the model to select transportation corridors,
3. Provides the opportunity for the research team to work with a variety of city managers and planners within the County to assess the degree to which transit and other alternative modes are considered in the planning and financing process, and
4. Provides a base to determine the degree to which transit spurs economic development and enhanced community livability.

Highway 81 is an older, arterial route that runs through the cities of Dayton, Rogers, Osseo, Maple Grove, Brooklyn Park, Crystal, and Robbinsdale before terminating in downtown Minneapolis. It was the prime route between Minneapolis and the northwest until Interstates 94 and 694 were built. Housing booms followed these interstates to the point that Maple Grove and newer parts of Brooklyn Park are experiencing high levels of growth, while the older, inner ring suburbs have lost population in the past 10 years.

As the study proceeded, SLPP identified five components of corridor development that provided the framework for this study: citizen preferences, economic impacts, governance, financing, and design. In conjunction with the Design Center for the American Urban Landscape at the University of Minnesota, SLPP provided research and policy input to the Northwest Corridor Partnership, a consortium of business and community leaders led by Hennepin County Commissioner Mike Opat.

Research activities conducted during this study are as follows:

1. Framework policy discussions with local planning officials in April and May 2000
2. A Capstone course on corridor development was offered at the Humphrey Institute
3. Focus Groups with representatives from Robbinsdale, Crystal, Brooklyn Park, Osseo and Maple Grove businesses, city councils and city planning commissions in July 2000
4. A survey of 750 randomly selected citizens along the corridor in November, 2000
5. An analysis of innovative financing options
6. A trade off analysis of the potential impacts of various transportation options along the corridor; and
RECOMMENDATIONS

Citizen Preferences

Finding support for transitway development will require significant outreach and educational efforts. The focus groups and citizen survey indicate that the Northwest Corridor Partnership may be ahead of the curve in terms of redeveloping the entire corridor, as most respondents showed a preference for site-specific fixes or aesthetic improvements. This context may restrict options available for corridor development, without a significant educational effort to gain support for a transitway.

Impacts

Light Rail or BRT provide the most positive impacts, but cost or citizen support may prohibit full realization of these benefits. This study indicates that the most positive impacts from corridor redevelopment would come from light-rail, or, potentially at a lower cost, a busway that resembles light rail, such as bus rapid transit (BRT). In view of the citizen views noted above, the Northwest Corridor Partnership should support lower cost options that will improve the aesthetics of the corridor while gaining as much of the benefits of a dedicated transitway.

Governance

The Northwest Corridor Partnership should create a Joint Powers Agreement that will allow it to determine common long-term goals and set up a structure that will allow financing of these options. The Northwest Corridor Partnership is a good start towards gaining the input and cooperation needed from all stakeholders to successfully re-develop the corridor. The Partnership should create Joint Powers Agreements that will help determine points of common understanding, identify common goals, and ensure commitment together to achieve them.

Financing

The Partnership needs to consider a number of the alternative financing options described in this report, and pursue those that have the most amenable governance structure. Financing is the most significant challenge facing the Partnership. This report sets forward a number of opportunities that would allow the jurisdictions within the Partnership to work together and leverage existing funds into innovative investment options.

Design

The Partnership has sought citizen input at an early stage, but faces a challenge in choosing a development option that meets both current and future demands. The challenge will lie in identifying that option that provides a unifying theme while also redeveloping the corridor in a manner that meets current expectations for smoother car travel and improved aesthetics. The option must also meet future travel demands and development opportunities presented by a transitway.
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1 HIGHWAY 81 CASE STUDY

1.1 Introduction to the project and the report

Since the early months of 2000, a diverse set of stakeholders has worked to develop solutions to a variety of transportation and livability challenges and opportunities in the County Highway 81 corridor in northwest Hennepin County, Minnesota. This report discusses those challenges, presents possible solutions developed by the stakeholders, reports on the stakeholder process, and recommends steps that similar stakeholder processes should take in the future. This case study reports on an on-going process, and does not make recommendations about solutions to the challenges with which the Highway 81 stakeholders are grappling.

1.2 The Highway 81 corridor

The County Highway 81 (Highway 81) corridor\(^1\) is located in Hennepin County and runs through the cities of Dayton, Rogers, Osseo, Maple Grove, Robbinsdale, Crystal and Brooklyn Park before it terminates in downtown Minneapolis' warehouse district. The corridor passes through areas characterized by blight as well as those near prized parkland. Exhibit 1 shows a map of the corridor.

Highway 81 itself is an older, arterial route that was the prime route between Minneapolis and points to the northwest until Interstates 94 and 494 were built. Housing booms followed the interstates as residents of Minneapolis moved to the suburbs. Currently, there is a housing boom at the northern end of Highway 81 in the cities of Maple Grove and Brooklyn Park, and extending northwest into Rogers and Dayton. Subdivisions are taking the place of farmland that used to dominate the landscape.

There is a consistent migration from the downtown and older suburbs to the newer suburbs along Highway 81. From 1990 to 1997 older cities of Robbinsdale, Brooklyn Center, Crystal, New Hope and Osseo witnessed significant population losses. The older section of Brooklyn Park that borders Highway 81 had a population decrease of over 500 people over this period of time. In contrast, the newer areas of Brooklyn Park, along with Maple Grove, are experiencing high levels of growth. The amount of new housing stock in Maple Grove and Brooklyn Park appears to be consistent with the previous finding. The area between Interstate 94 and Highway 81 is being rapidly converted from vacant and/or agricultural land into housing, typically larger single-family homes.

These changes in land use and demographic shifts have produced strains in the existing transportation system.

The stakeholder process is considering transportation improvement options for the corridor in accordance with a framework for transportation decision-making that includes citizen participation, economic analysis, financial planning, design, and governance. Citizen participation is the cornerstone of the framework. Thus, one of the goals of this research project is to assess the needs of the residents along Highway 81. Further, by using a number of innovative methods, the project hopes to assess the residents' perceptions about their neighborhoods amongst this change.

\(^1\) For the purposes of this project, a corridor is defined as the area traversed by a transportation arterial. This definition includes both the transportation infrastructure (e.g., the roadbed, rails and stations) and the new and existing development that surrounds that infrastructure.
Transit options are limited for those wishing to travel the length of the corridor. No bus route runs the length of the highway, though there are bus routes that include the southern end of the road to its terminus in downtown Minneapolis. Additionally, commuters from the cities along the corridor can board buses that travel downtown via I-94. Most residents of the surveyed cities...
report that the vast majority of their trips are in personal vehicles. According to a survey of residents in the cities along the corridor conducted for this study (see Sections 3.3 and 7.4), 20 percent of people making work trips in the cities along the corridor use the highway five days a week. Few residents report that they use the bus as their primary mode for work or other trips.

1.3 **An introduction to the options**

To begin this study, the State and Local Policy Program at the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota (SLPP) defined four main transportation options for the corridor:

1. Follow current trends;

2. Make roadway improvements;

3. Build a busway; or

4. Build rail transit.

Under the *current trend* scenario, the corridor would be allowed to continue to develop without regional coordination or significant transit development. The most significant improvement would be grade separation at Highway 169. This alternative would leave the corridor with difficulty handling future growth. Further, development along the corridor would be piecemeal and uncoordinated, traffic and access management issues would not be addressed, financing options will be limited without a unified force, monies for transit funding will be inaccessible, and the scenario would conflict with Met Council’s 2020 transit plan.

The second option, making *roadway improvements*, would focus on improving throughput, access and aesthetics. Signalization would be improved and different segments of the road may be re-engineered. Access would be enhanced through improvements such as additional left-hand turn lanes. Highway 81 would be considered as a potential parkway and landscaped accordingly. Existing developments will be incorporated in the traffic improvement plans. Fewer funding sources would be available to the corridor under this option, but the total amount of funds available would be higher than in other options. However, this option conflicts with the Met Council’s 2020 transit plan.

A *busway* would focus on fulfilling commuter needs. Express bus routes would be created to deliver passengers from Maple Grove, Brooklyn Park, Rogers, and the other communities along the corridor into downtown Minneapolis. The existing Hubbard Street station in Robbinsdale could be used as a major transfer point. This option conforms to the Met Council’s 2020 transit plan and creates opportunities for transit oriented development. If a busway were selected as the desired option, planners would consider an express busway and carpool lane. This option raises a variety of design issues. The direct impact on corridor businesses would need to be assessed. Full commitment from participants would be necessary to obtain financing.

Finally, a *rail* option would mean utilizing an existing rail corridor at least to Robbinsdale, and potentially the Hubbard Street station. Several funding sources are available for rail. Stakeholders would need to decide between LRT and commuter rail. Also, the direct impact on corridor businesses would need to be assessed. This is a politically volatile option although it partially conforms to Met Council’s 2020 plan and creates opportunities for transit-oriented development. More in-depth, time-consuming engineering would be required under this option.
The Northwest Corridor Partnership, a consortium of business and community leaders led by Hennepin County Commissioner Mike Opat, has also begun investigating alternatives for transportation improvement on Highway 81. Through this community-led process, and encouraged by incentives from the Metropolitan Council and other agencies, the busway has emerged as the leading alternative in the corridor. Busway proponents are also advocating concurrent economic development with a transit-oriented design theme. More information on the partnership can be found at [www.northwestcorridor.org](http://www.northwestcorridor.org).

Over time, as the Partnership has shifted to exploring mainly the busway option, it has developed several variations on this transit alternative: a dedicated busway in the railroad right-of-way, highway shoulder lane bus service, or improved bus service on arterial routes. The busway is moving forward in regional plans; in October, the Metropolitan Council dedicated $2.1 million for additional planning for the corridor. It is not clear if this money would have been dedicated for planning purposes without the visible and vocal support of the communities along the corridor.

This shift to considering transportation projects on a corridor scale rather than a site-specific scale changes how planning and development must be approached. The Hennepin Community Works program promotes a regional planning process that involves constituents across traditional geographic divisions. Further, this type of regional planning process involves not only transportation engineers, but also local elected officials, business people, and representatives of the community. A corridor approach is powerful because it can motivate wider participation, increasing the number of affected parties who are at the table. This approach thus has the potential to produce substantially greater economic impact than an approach that focuses on an isolated transportation investment.

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2 The Northwest Corridor Partnership is a public-private partnership created to mobilize resources for the redevelopment of the Highway 81 corridor. Hennepin County Commissioner Mike Opat convened the partnership to investigate and develop alternatives for improvements along the corridor. Participants in the partnership include representatives from the regional, county and all affected city governments and members of the business community.
2 PROJECT CONTEXT / FRAMEWORK

The Transportation Efficiency Act for the Twenty-first Century (TEA-21) requires a holistic approach to transportation planning. Specifically, TEA-21 requires transportation to support broader community and environmental goals by adopting a set of principles to guide implementation of federal transportation policy that extends beyond the traditional highway-construction approach. TEA-21 recognizes that transportation is only one part of urban life and seeks to integrate transportation into urban life while pursuing goals of sustainability, economic development and global competitiveness, and increased multimodal options. Community perceptions need to be taken into account before investments divide a neighborhood or poor planning pushes people away.

Poor transportation design can adversely affect community. An individual’s satisfaction with the built environment depends not merely on the ability to be transported from place to place but also on understanding the significance of various community destinations and the relationships among them—not just geographical relationships but also economic, environmental, and social relationships. Understanding the transportation connections between and within communities, and responding to those connections in transportation plans, can improve modal choice, destination choice, and land use. Poor transportation design in neighborhoods can sever communities from one other, and reduce a community’s sense of common identity and connection beyond well-traveled transportation corridors. Good community design can connect neighborhoods and provide residents with a more positive feeling about the public spaces that they encounter each day. This case study will provide a model for other cities that wish to enact place-based planning strategies.

2.1 The Challenge of the Multi-jurisdictional Corridor

A multi-jurisdictional corridor poses significant and pressing challenges in the development and management of transportation assets. Challenges in corridor development within even a single jurisdiction are many: the need to ensure access to property, provide high quality transportation, develop livable communities, and provide for economic development along the corridor, to name just a few. These challenges are exacerbated and new ones created when a corridor crosses jurisdictional boundaries.

The involvement of multiple jurisdictions can raise marked difficulties in planning and developing corridors. The likelihood of these difficulties creates a need for a model that addresses the major problems in corridor planning and management. This paper discusses such a model and applies it to a transportation corridor in a major metropolitan area. The model developed here has roots in previous studies carried out by SLPP. A previous report sketched a framework for similar transportation planning and management efforts (State and Local Policy Program, 2000).

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3 Under TEA-21, the Transportation Enhancement program and the Transportation and Community and System Preservation Pilot program encourage livable communities goals. The Transportation Enhancement program, funded by a ten percent set aside from the Surface Transportation Program, can include projects that encourage multimodal options, enhance landscaping, restore historical transportation landmarks, mitigate pollution from water runoff, and provide educational information for bikers and walkers. The Transportation and Community and System Preservation Pilot program encourages communities to develop livable communities through transportation projects. Eligible applicants include Metropolitan Planning Organizations (MPOs), local, and/or state governments. Projects that mitigate the environmental costs of transportation, provide alternatives to infrastructure development, supply jobs, and encourage the increased efficiency of the transportation system meet the guidelines. Between 1999-2003 the program is authorized for $120 million.
The model framework for corridor planning and development has four major components:

1. Economic impact analysis,
2. Governance,
3. Financing, and
4. Design.

In addition, citizen preferences provide an overarching guide to planning and decision-making. The economic impact analysis informs the initiation and scope of the project, governance informs the management and oversight of the corridor, finance is a tool to bring together public and private funding options, and design follows to bring together a resulting plan for the project, all informed by citizen preferences. Thus, each component of the framework informs and is informed by the other components.

Exhibit 2 illustrates this framework, highlighting the interconnectedness of the constituent parts. This framework, if applied rigorously and starting in the early stages of a planning process, should help ensure that more efficient—that is, more acceptable to the community and effective—transportation investment decisions are made. Without the cooperation of all decision-makers, including political leaders, the business community, and residents, a project could encounter a roadblock after much time and effort has already been invested in its development. The framework will be described in greater depth in the remainder of this report.
2.2 Applying the SLPP framework to the Highway 81 Corridor

This paper explores the application and implications of SLPP's framework for transportation decision making in the Highway 81 corridor, which includes multiple jurisdictions in Hennepin County. The project brought together a multi-disciplinary team and a wide range of stakeholders to develop and analyze alternative approaches to improvements on a corridor in the Twin Cities.

The remainder of this paper describes the framework and analysis in more detail, and is divided into six additional sections. Sections 3 through 7 describe the project in context of the SLPP framework. Citizen participation, economic effects, governance, financing and design are addressed in the sequence as suggested in the framework. Section 8 concludes with lessons learned, recommendations, and suggestions for the next steps for the corridor project.
3 CITIZEN PARTICIPATION

The citizen participation component of the framework is affected by, and has effects on, each of the other components. Citizen preferences are the foundation for all of the other pieces of the planning and development process. There are several ways in which these preferences can affect the rest of the process. For example, in the area of governance, if citizens do not respond well to special districts then even if the optimal institutional structure for administering the corridor is a special district, this recommendation is sure to meet with resistance. Citizens may not respond to districts for several reasons, from feeling a loss of accountability to having no experience in dealing with special districts. In the area of financing the preference problem can be marked. Even if all of the citizens of the jurisdictions along the corridor are likely to benefit from an infrastructure improvement, it may encounter resistance if implementation requires property tax rate increases.

The State and Local Policy Program implemented two types of citizen involvement in the corridor planning and development:

(1) focus groups with leaders and project participants on issues regarding the corridor, and

(2) a mail survey conducted with residents in the cities along the corridor.

3.1 Focus Groups

During the month of July 2000, three focus group work sessions were conducted with representatives from local communities along the Highway 81 Corridor including:

- City Council Members
- Planning Commissioners
- Local Business Owners

The focus group work sessions were facilitated by two University of Minnesota research centers: the Design Center for American Urban Landscape and the Humphrey Institute’s State & Local Policy Program.

The three work sessions each consisted of the same three sections:

- Part I – Discovering the Physical Features of the Corridor
- Part II – Prioritizing Corridor Issues & Opportunities
- Part III – Identifying Possible Themes & “Naming” the Corridor

A participant list is attached as Appendix A. The findings from these three focus groups are summarized below.

3.1.1 Discovering the Physical Features of the Corridor

Participants were asked to identify three corridor physical features: landmarks, natural & cultural amenities, and frequent travel routes within the corridor.
Although a diverse group of corridor landmarks were identified, the most frequently identified were commercial businesses/shopping, cross-streets, public buildings/schools, parks/beaches/playfields, lakes/creeks/wetlands, Crystal Airport, and North Memorial Medical Center. Specifically, commercial businesses (27%) and major cross-streets (20%) were by far the most commonly cited landmarks within the corridor, although City Council members also marked public buildings/schools (19%) as significant landmarks and Local Businesses felt parks (16%) were important.

When asked to identify the area’s natural and cultural amenities, focus group participants most frequently identified parks/beaches/playfields, lakes/creeks/wetlands, commercial businesses/shopping, parkways, and Crystal Airport. Parks/beaches/playfields represented the most popular corridor amenities (36%) followed by lakes/creeks/wetlands (18%). Planning Commissioners also felt strongly the corridor’s commercial businesses (29%) are important amenities, while Local Businesses identified parkways (19%) as important.

3.1.2 Issues and Opportunities

Participants identified their favorite and least favorite places or attributes in the corridor. This question elicited varying responses from the three focus groups. Local Businesses highlighted the corridor’s successful commercial businesses (43%), positive road features (26%), and the parks (13%). City Council members also cited specific commercial businesses (22%) as some of the corridor’s best places, followed by parks (15%). The Planning Commissioners were less optimistic about the corridor in general and did not identify many best places within the corridor.

Identifying the Least Favorite or Worst Places within the corridor was highly focused on road design issues (58%), with some concerns about the impacts of industrial sites (10%) and commercial businesses (7%) along the highway. Bad intersections (25%), traffic congestion (11%), and poor on-off highway access (9%) dominated the road design issues.

3.1.3 Corridor Themes and Names

Participants of the three focus groups were asked to name the Highway 81 corridor from two perspectives. First, in the “As Is” case, as someone who lives, commutes, works, or owns a business near the road today. Second, in the “Best Case,” as someone who has the authority and responsibility for marketing and bolstering the identity of this road.

The names for an “As Is” scenario tended to focus on automobile travel and the problems associated with speed and congestion (e.g., Stop and Go, Congested Speedway, Get There Way, or Beware Drive). Few of the “As Is” names focused on a positive aspect of the road, nor did they focus on non-motorized transport or transit. The “Best Case” corridor names were significantly more positive. Most focused on the natural or landscape attributes of the corridor (e.g., Red River Highway, Up North Parkway, Northwest Way). Appendix B contains the full list of suggested corridor names.

3.2 Survey

The second component of the citizen participation research was the design and implementation of a survey, sent to residents of the communities along the Highway 81 corridor. The survey was used to assess residents’ transportation patterns and their various perceptions about the corridor.
3.2.1 Survey Background

Visualization is a powerful tool currently used by a number of researchers. Over four decades ago Kevin Lynch published *The Image of the City*, in which he used images to access people’s perception about their community. Not surprisingly, Stanley King (1998) finds that greater visualization facilitates public participation. William Albert (1997) found that visual memory was significant in representing geographic space. With advances in technology, researchers today have superior capabilities to use visualization as a research tool. Today computer aided design (CAD) and geographic information systems (GIS) are a few important advances that aid researchers.

Anton Nelessen has used paired images of the city to determine responses to different urban designs and structures. His Visual Preference Survey has been reproduced many times over throughout the United States. Another example of using of images for understanding community preference is Jim Constantine’s automated interactive community vision survey.

Visualization techniques can also help present alternative scenarios for public comments. John Fregonese and Peter Calthorpe have conducted surveys in Portland and Salt Lake City in which they present different land use scenarios to get better public interaction in the planning process. Michael Kwartler has used 3-D GIS visualization to assist citizens make better informed decisions on local zoning regulations.

Researchers have also been able to survey perceptions of geographic areas. Tom Horan and Lyn Kathleen surveyed residents in Southern Minneapolis were respondents created maps of locations they perceived as assets and liabilities. Charles T. Kerchner, and Grant McMurran conducted a similar survey in Pomona, California. This survey was also completed in Riverside, California (Horan, Serrano, and McMurran).

One goal of a community mapping project is to gain information from respondents that we would not have received through traditional means. Traditional surveys can often show that something is an asset or liability within a community, yet fail to provide a location. This is not necessarily a problem so long as assets and liability fall randomly within a community. Yet this is rarely the case. Most communities have “nice” areas and problem areas that are clustered geographically. People want distance between their home and the problem areas while conversely having a strong desire to live near positive assets. The existence of positive community assets may not be a benefit to those who perceive these assets too far away. Having respondents provide locational information on a map provides researchers with a wealth of information.

Next, the community mapping allows researchers to link traditional tabular data with spatial data. All spatial data can be added to existing non-spatial data to create a better picture of reality. People who live nearby are likely to share other attributes that may help explain their behavior.

3.2.2 Methodology

During the fall of 2000, a survey was mailed out to 750 randomly selected residents who live near Highway 81. The first step was to obtain a large set of potential address from around Highway 81. The marketing company Claritas compiled a list of 10,000 residents from the seven ZIP codes around Highway 81. These addresses were then geocoded by the GIS software ArcView 3.2, with a success rate of around 82%. All the addresses that fell within one mile of Highway 81 between Robindale and Maple Grove where selected as potential survey recipients. From this list of addresses, 750 were randomly chosen to receive the survey packet. From this number, 176 completed surveys were returned, a response rate of around 26%.
The survey contained two parts: a traditional questionnaire and a mapping section (see Appendix C for a copy of the survey). The survey asked 26 questions on transportation patterns, sense of place, social, economy, and demographic data. An optional open-ended question was included at the end of the questionnaire.

Next, respondents were asked to identify location information on three maps of the area around Highway 81. Respondents were asked to identify locations of assets, liabilities, and areas that they frequent on each of the three maps.

The information from the questionnaire and the maps were then analyzed. The questionnaire information was analyzed using SPSS. The maps were digitized and geocoded using ArcView. Once the maps were digitized, Spatial Analyst was used to examine the maps. Responses from all respondents were overlaid on the maps to obtain frequency counts regarding assets, liabilities, and frequented areas.

By using spatial data with traditional data, information about activities can be more fully analyzed. Spatial data analysis provides a layer of information that can help enlighten the decision making process and provide visual information that may not be immediately intuitive when looking at traditional data. Spatial patterns including resident's navigational memories can be observed when utilizing spatial data analysis.

3.2.3 Results

Survey results show that most respondents have a positive perception of their neighborhood (see Table 1).

- Nearly everyone agreed that their neighborhood was a good place to raise children (83.3%) with barely 5% of the respondents dissenting.

- Over 70% of the respondents felt that they were part of their neighborhood and over 77% thought that transit is accessible.

- Over 70% of the respondents disagreed that crime was a serious problem in their neighborhood.

- Over 56% percent of the respondents thought that the quality of public schools in their neighborhood were excellent compared to the less than 10% who disagreed.

- More people felt that their neighborhood was improving than believed the neighborhood was getting worse (48% compared to 18.5%).

- One of the least optimistic perceptions about the respondent's neighborhood was the quality of cultural amenities. Only 26.6% felt that their neighborhood had excellent cultural amenities while 23.1% disagree with 50.3% neither agreeing nor disagreeing with the statement.

Overall, it appears that most respondents felt good about their neighborhoods and better about the future.
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<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>10.5%</td>
<td>61.0%</td>
<td>15.7%</td>
<td>11.6%</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td>The quality of public schools in my neighborhood is excellent</td>
<td>5</td>
<td>12</td>
<td>58</td>
<td>77</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2.9%</td>
<td>7.0%</td>
<td>33.9%</td>
<td>45.0%</td>
<td>11.1%</td>
<td></td>
</tr>
<tr>
<td>My neighborhood is a good place to raise children</td>
<td>1</td>
<td>8</td>
<td>20</td>
<td>120</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0.6%</td>
<td>4.6%</td>
<td>11.5%</td>
<td>69.0%</td>
<td>14.4%</td>
<td></td>
</tr>
<tr>
<td>I feel that I am part of my neighborhood</td>
<td>3</td>
<td>5</td>
<td>43</td>
<td>103</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1.7%</td>
<td>2.9%</td>
<td>25.0%</td>
<td>59.9%</td>
<td>10.5%</td>
<td></td>
</tr>
<tr>
<td>I perceive transit is accessible in my neighborhood</td>
<td>3</td>
<td>15</td>
<td>20</td>
<td>107</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1.8%</td>
<td>8.9%</td>
<td>11.9%</td>
<td>63.7%</td>
<td>13.7%</td>
<td></td>
</tr>
<tr>
<td>My neighborhood has excellent cultural amenities</td>
<td>5</td>
<td>35</td>
<td>87</td>
<td>42</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2.9%</td>
<td>20.2%</td>
<td>50.3%</td>
<td>24.3%</td>
<td>2.3%</td>
<td></td>
</tr>
<tr>
<td>I often take alternative routes to avoid problems on Highway 81</td>
<td>18</td>
<td>79</td>
<td>27</td>
<td>34</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>10.4%</td>
<td>45.7%</td>
<td>15.6%</td>
<td>19.7%</td>
<td>8.7%</td>
<td></td>
</tr>
<tr>
<td>I often find that traffic is a problem on Highway 81</td>
<td>13</td>
<td>61</td>
<td>38</td>
<td>43</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>7.6%</td>
<td>35.5%</td>
<td>22.1%</td>
<td>25.0%</td>
<td>9.9%</td>
<td></td>
</tr>
<tr>
<td>Highway 81 is an attractive place to travel</td>
<td>21</td>
<td>46</td>
<td>61</td>
<td>43</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>12.1%</td>
<td>26.4%</td>
<td>35.1%</td>
<td>24.7%</td>
<td>1.7%</td>
<td></td>
</tr>
</tbody>
</table>
Survey respondents typically felt less optimistic about Highway 81 than about their neighborhoods. While a majority of the respondents disagreed that they often take alternative routes to avoid Highway 81 (56.1%), over 28% of the respondent claimed they often did. The respondents seem divided over the question whether traffic is a problem on Highway 81; 43.1% said traffic was not a problem and 34.9% indicated that it was a problem. Only 26.4% of the respondents felt that Highway 81 is an attractive place to travel, compared to over 38% who disagreed.

The mapping portion of the survey also provided a wealth of information with notable patterns. Maps displayed the composite perceptions of the respondents. The composite asset map (see Map 1) displays areas that multiple respondents perceived as assets, with the darkest green representing areas with the most responses. North Hennepin Community College, North Memorial Medical Center, lakes and parks were common asset responses. Shopping centers were also commonly marked as assets with Crystal Center, downtown Robbinsdale, and shopping around Wal-Mart in Brooklyn Park were also often marked as assets. Surprisingly, the intersection of Highway 81 and I-94 along with Highway 81 south of Osseo were also listing as assets by many respondents.

The Liability map (see Map 2) paints a different picture of Highway 81. The most obvious difference is the intersection of Highway 81 and 169, which was repeatedly marked as a liability by the respondents. In fact, most of Highway 81 was often labeled as a liability, with a number of intersections getting multiple liability responses. Other areas getting high liability scores include the airport, the surrounding industrial area, and the area around Brooklyn Boulevard.

Many respondents cited traffic problems or ugly vacant buildings as reason why they labeled an area as a liability. The intersection at Highway 81 and 169 was often label “horrible” or “needs an overpass.” From Osseo down to Robbinsdale, many respondents wrote
that Highway 81 had “too many stoplights”, “too much traffic”, “bad design”, or that the shops were “unattractive”. The vacant buildings north of the Medical Center along Highway 81 were often marked as a problem area that needed redevelopment. It is an interesting contrast that nearby shopping on West Broadway was one of the most cited areas for assets, while these vacant stores were labeled as liabilities.

To better visualize the contrast between the composite assets and liability maps, ArcView was then used to subtract the liability map from the asset map to create a map showing the net asset and liability areas according to the respondents (see Map 3). While the asset map labeled the intersection of Highway 81 and 169 as an asset area, the vast number of liability responses shows that more people dislike the intersection than like it. It also appears that people who like the area around Osseo and Maple Grove outnumber those who felt it is a liability. The opposite was true for the southeast of Brooklyn Park and north of Brooklyn Center.

Most people felt that Highway 81 was a liability for its entire length through Brooklyn Park and Crystal, but viewed it as an asset through Osseo and Robbinsdale. This conflicting view of Highway 81 is also shown in the results of the open-ended question. Many respondents felt the highway needed dramatic changes and others strongly stated that they want to leave it alone. Some examples of the positive comments are:

- “It’s fine as far as I’m concerned. It’s a good alternative, if the freeway’s at a standstill (94/694)”

- “I use 81 to get to 169. I work afternoons so I have no issue with 81. Traffic is never a problem.” “I like Highway 81 as it is.”

- “Leave it alone. I use 81 on my way home from work. If you improve 81 it will attract more traffic and become congested.”

- “It is a good road at the present time.”

It was also clear that many respondents had significant issues with the highway. Multiple respondents stated that the intersection at Highway 81 and 169 was a problem and needed an overpass. Similar comments were also said about the intersection at Highway 81 and 100.

- “It is neither a highway nor a residential street. Where does 81 start or end? Better emphasis on travel, intersection of 100 & 81 is goofy.”

- Map 3
  Total Assets Minus Total Liabilities

- Net Asset Responses
  - -18 - -13
  - -12 - -6
  - -5 - -1
  - 0
  - 1 - 5
  - 6 - 12
  - 12 - 19

This map shows the net difference between areas labeled as assets compared to areas labeled as liabilities.
- “My biggest problem with Hwy 81 is between Osseo & Robbinsdale. There are so many stoplights. This rather than traffic levels slows down travel.”
- “Too many stoplights!”
- “Reduce stoplights, improve road surface, reduce intersections, turn lanes added, widen road, overpass/underpass at 169 & 100”
- “Must upgrade County 81”
- “Where are the sidewalks and streetlights?: County Highway 81 is DEFINITELY NOT pedestrian friendly.”
- “Increased traffic would require increased transit (bus & light rail or commuter train along the road to relieve traffic congestion.)”
- “Instead of Highway 81 competing with West Broadway for business and customers, it should act in sync with Broadway (forming a dual W. Broadway – Lakeland Ave North Business Corridor), extending into Crystal and Brooklyn Park what Robbinsdale already started doing.”

There were many comments regarding Highway 81, but little consensus for what needs to be done. As pointed out earlier in the findings, most respondents did not view traffic on Highway 81 to be a problem. Perceptions about Highway 81 appear to be related to the home city of the respondent. A far greater percentage of respondents from Maple Grove thought that traffic on Highway 81 was a problem than respondents from other cities (see Table 2). Less than 30% of the respondents from Maple Grove did not find traffic on Highway 81 to be a problem. This is in sharp contrast to those in other cities who typically where not critical of the traffic on Highway 81. A majority (56.7%) of the respondents from Crystal found that traffic was not a problem, compared with only 23.3% who thought that it was. This may appear somewhat counter-intuitive, since the residents of Crystal and Robbinsdale live in a more compact city than do the residents of Maple Grove. Traffic and parking problems are often assumed to be greater in higher density areas, yet high-density areas typically offers greater variation in transportation mode choices.
Table 2: Perceptions of Highway 81 by Home Town

Traffic on Highway 81 is...

<table>
<thead>
<tr>
<th>City</th>
<th>Not a problem</th>
<th>A problem</th>
<th>Neither</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maple Grove</td>
<td>14</td>
<td>23</td>
<td>10</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>29.8%</td>
<td>48.9%</td>
<td>21.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>11</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Robbinsdale</td>
<td>42.5%</td>
<td>27.5%</td>
<td>30.0%</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Crystal</td>
<td>56.7%</td>
<td>23.3%</td>
<td>20.0%</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>19</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Osseo or Brooklyn Park</td>
<td>47.3%</td>
<td>34.5%</td>
<td>18.2%</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>60</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>43.0%</td>
<td>34.9%</td>
<td>22.1%</td>
<td>172</td>
</tr>
</tbody>
</table>

The difference between Maple Grove residents with other respondents was also clear on a number of other issues. Below is a list of differences that were statistically significant within the survey⁴.

- Less likely to think that crime is a problem
- More likely to think that public schools are excellent
- More likely to believe that their neighborhood is a good place to raise children
- Less likely to believe that transit is available in their neighborhood
- More likely to avoid Highway 81
- More likely to think that traffic is a problem on Highway 81
- More likely to use Highway 81 to get to work
- Less likely to take the bus to work
- Have more autos per household

⁴ At the p<0.05 level.
- Have more persons per household
- Have more children per household
- Have lived in their neighborhood for less amount of time than other respondents
- Have a higher income
- More likely to be either married or living with a partner

It is notable that the Maple Grove respondents tend to like their community more than the other respondents like theirs, but dislike their commute. The typical Maple Grove respondent perceived their neighborhood to have better schools and less crime than what other respondents thought about their community. The typical Maple Grove respondent had more children in the household, more likely to be married, had a higher income, and was more auto dependent.

This difference between Maple Grove and the other respondent typically was stronger that other variables. Respondents who travel to work five days or more on Highway 81 typically did not differ greatly on other issues with respondents who did not use Highway 81 for work. The age, education level, of income of the respondent had little bearing on how they felt towards Highway 81, thus providing evidence that one of the strongest factors contributing to one's perception about their community is where they live.

Another spatial variable that has statistical significance is the respondent's perception of the intersection at Highway 81 and 169. Those who labeled this intersection as a liability tended to share other opinions and attributes. Not surprisingly, respondents who labeled the troubled intersection as a liability tended to avoid Highway 81, thought that traffic was a problem on Highway 81, and thought that the highway was not attractive, compared to other respondents.

Again, the home city of the respondent was a significant factor for whether someone labeled the intersection at Highway 81 and 169 as a liability (see Table 3). Respondents from Maple Grove, Brooklyn Park, and Osseo clearly labeled the intersection of Highways 81 and 169 as a liability more often than did respondents from Crystal or Robbinsdale.
Table 3: Views of Intersection of 81 and 169

<table>
<thead>
<tr>
<th>Home City</th>
<th>Labeled 81 &amp; 169 as a liability</th>
<th>Did not label as a liability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count within Maple Grove</td>
<td>24</td>
<td>13</td>
<td>37</td>
</tr>
<tr>
<td>% within Maple Grove</td>
<td>64.9%</td>
<td>35.1%</td>
<td>100%</td>
</tr>
<tr>
<td>Count within Robbinsdale</td>
<td>24</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>% within Robbinsdale</td>
<td>92.3%</td>
<td>7.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Count within Crystal</td>
<td>21</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>% within Crystal</td>
<td>80.8%</td>
<td>19.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Count within Osseo or Brooklyn Park</td>
<td>22</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>% within Osseo or Brooklyn Park</td>
<td>64.7%</td>
<td>35.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Total Count</td>
<td>91</td>
<td>32</td>
<td>123</td>
</tr>
<tr>
<td>% within Home City</td>
<td>74.0%</td>
<td>26.0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Transportation issues clearly are spatially related. The location of one’s home or workplace is an important variable to transportation planners. The locations of assets and liabilities within a neighborhood also are spatial transportation issues that need to be addressed. There are widely different perceptions along Highway 81 between the people who live along this route. For some, Highway 81 is a throughway whose sole function is to transport people between home and work. For others, Highway 81 is place to shop, eat, and live. Failing to recognize this will lead to poor transportation planning.

The traffic patterns along this corridor are analyzed in Section 7.3.
4 ECONOMIC IMPACT ANALYSIS

A community undertakes a transportation corridor redevelopment for several reasons. Motivations range from quality of life, pollution, congestion and other local concerns. A major consideration should be the economic impact of development decisions. Therefore, a comparative economic impact analysis should be conducted for the corridor as well as for the individual communities or projects along the corridor. That is, analyze if the proposed development would make the affected communities better or worse off than they are in the current state.

A given corridor design may not produce the highest possible economic impact for the corridor and its related jurisdictions as a whole. For example, a design preferred by the City of Robbinsdale may create negative economic impacts for other areas along the corridor that might outweigh the benefits to citizens of Robbinsdale. Economic impact analysis should be conducted to weigh potential costs and benefits of various corridor design scenarios. There are many different types of economic impact analysis, ranging from complex benefit-cost analysis to easier to understand qualitative discussions of the ranges of potential costs and benefits. For this project the State and Local Policy Program chose the latter treatment due to time and funding constraints.

4.1 Methodology

Analyzing the impacts of different corridor options is a challenge. It calls for prospective evaluations of the effects of corridor improvements on travel, economic development and the environment of the corridor. To state these impacts with any kind of certainty is probably to overstate our ability to forecast future outcomes. Numerous benefit-cost analyses have been shown ex post to be seriously misleading in terms of benefit-cost ratios or other measures of the efficacy of the project.

Therefore, instead of creating a gross estimate of the economic impact of the corridor improvement, this approach highlights some prospective tradeoffs between the various corridor alternatives. A matrix is used that highlights some prospective tradeoffs between the various corridor scenarios listed in section 1.3. The matrix is pictured in Exhibit 3. The scenarios are listed at the top of the matrix, with the additional step of dividing rail into light and heavy rail. The relevant impacts for which these scenarios will be evaluated are listed along the side of the matrix.

The guiding framework for these criteria is found in Cervero & Aschauer. They categorize transit system economic impacts into three broad categories: generative impacts, redistributive impacts and financial transfer impacts. Generative impacts are those that produce net economic impacts in a region. They arise from one of two sources, either the use of previously unused resources or the more efficient use of existing resources. The net economic gain that arises from these effects reflects increases in productivity, the enhanced competitive advantage of a region and the increased quality of urban living. The gains from these impacts are realized by society at large and thus are true economic benefits. Types of generative impacts include:

- User benefits
  - Travel time savings
  - Safety benefits
  - Reduction of transportation costs
- Employment and income growth unrelated to system construction, operation and maintenance
  - Agglomeration/urbanization effects
    - Higher productivity
    - Lower infrastructure costs
- External benefits
  - Air quality
  - Reduced traffic noise and road vibration
  - Reduced fossil-fuel consumption
- Accessibility benefits
  - Access to employment
  - Access to services
- Reduced development cost
  - Reduced need for parking in employment nodes

Redistributive impacts accrue only to a particular area of a given region. They do not affect the region as a whole. These are the locational shifts of economic activity within a region. The economic activities described below would have occurred anyway somewhere within the region, but they would have been more dispersed. Economists by and large are loath to count redistributive impacts as economic impacts, but they may be important impacts to policy makers seeking to stimulate economic growth in a particular area. Examples of redistributive impacts are:

- Land development around transit stops: This can be considered a true economic impact to the extent that a goal of the project is to stimulate private investment or reinvestment within the transit corridor.

- Employment and income growth due to land development: This is most likely redistributed from other areas of the region and therefore is not a true economic impact.

- Increased economic activity within the corridor.

Financial transfer impacts are the final category of impact. These are not true economic impacts but merely the conveyance of monies from one entity to another. They are simply shifts from one organization's ledger to another. However, to the extent that the governments are the recipients of these transfers, they will be of interest. Types of financial transfer impacts are:

- Employment and income growth related to construction, operation and maintenance of the transit system: The money spent to build, operate and maintain the system would have gone to another project, gone back to higher levels of government or gone to
taxpayers in the form of tax cuts. The one exception to this is if dollars from higher levels of government would not have been spent in the region without the project.

- Joint development income: The payments received by transit agencies are mostly transfers from private developers.

- Property tax income: Projects inevitably increase the values of area property. This results in greater property tax payments by property owners. These are transfers from private parties to governments. Also, a project that shifts economic activity from one part of a region to another causes an increase in property tax revenues in the gaining area. This is an interjurisdictional transfer.

Exhibit 3 reflects most of these impacts. To make the headings more intuitive, some impacts have been rearranged, and since some of the impacts shown by Cervero and Aschauer overlapped somewhat, those have been left out. For example the agglomeration/urbanization impacts pointed out in their study is at least somewhat a determinant of employment and income growth. Also, it should be noted that this methodology does not account for capital or operating and maintenance costs. These costs, and methods for obtaining them, are discussed in section 6.

### Exhibit 3. Economic Analysis of Highway 81 Corridor Transportation Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Current Trends</th>
<th>Roadway Improvements</th>
<th>Dedicated Busway</th>
<th>Light-Rail Transit</th>
<th>Heavy-Rail Transit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor User Impacts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel Time</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Safety</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Transportation Costs</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Economic Impacts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Growth</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Income Growth</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Land Development¹</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Job Accessibility</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>External Impacts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Noise and Road Vibration</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Reduced Development Costs in Employment Nodes</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Transfer Impacts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment and Income Growth</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Related to Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint Development Income</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Property Tax Income</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

¹Land Development may be a combination of new development and a transfer of development within and among jurisdictions.

Coding: 0 = This scenario is no better than the current trends scenario on this impact.
1 = This scenario is somewhat better than the current trends scenario on this impact.
2 = This scenario is markedly better than the current trends scenario on this impact.
3 = This scenario is far better than the current trends scenario on this impact.
4.2 Highway 81 Analysis

In order to determine some of the effects of the potential scenarios, a simulation model of the macro-level corridor effects was created for the three options that deviate furthest from the base current trends scenario. These are the dedicated busway scenario, the light rail and the heavy rail options. Appendix F describes the nature of the simulation model. This model produced outputs in terms of the Corridor User Impacts and most of the Economic Impacts.

4.2.1 Corridor User Impacts

As Exhibit 3 shows, in terms of corridor user impacts, the two rail options emerged as providing the most improvement. Both light rail and heavy rail are particularly good options for getting people out of single-occupancy vehicles (SOVs) and into transit. This translates into higher ridership numbers during peak-hour periods. This results in strong user and non-user travel time gains. Heavy rail has slightly lower travel time benefits than does light rail due to typically higher wait times for passengers at stops. This wait time reduces the benefit accruing to passengers, thereby reducing the travel time benefit for heavy rail.

Safety-related benefits tend to be related to the overall reduction in SOVs. Crashes are usually modeled as a function of the amount of vehicle-miles traveled, which is in turn a function of the number of vehicles traveling along with the distance traveled. Since they tend to reduce the number of vehicles on the road most dramatically, light rail and heavy rail options produce greater levels of benefit than any other option. The dedicated busway option is predicted to produce higher levels of benefits than roadway improvements, which produce small gains over current trends. However, it should be noted that busway transit can be made more like rail transit through the use of stations, grade separation, etc. These amenities, taken alone or through the use of Bus Rapid Transit (BRT) that has been used effectively in some areas, tend to increase the cost of a busway but may produce ridership gains closer to rail.

Transportation costs are a function of travel time savings for corridor users. The reason for this statement is that travel time savings tend to be reflected in personal decisions regarding the number of vehicles owned and the number of trips taken, both of these affect the cost of transportation. In fact, Cervero and Aschauer point out that both of these areas should be carefully measured during a formal benefit-cost analysis to avoid double counting of benefits. So in this area, light rail will be the strongest option, with busway and heavy rail options having the next highest levels of benefit.

4.2.2 Economic Impacts

In the area of economic impacts, employment growth and income growth attributable to the public investment in transit are usually viewed as a function of the number of riders that use transit along with the number of trip origins and destinations in the corridor. In other words, if transit is used predominantly to move people from one end of a corridor to another with minimal stops, the number of riders is somewhat meaningless for the economic impact of transit within the corridor. There is a distinct tradeoff between travel timesavings for riders and economic development in the corridor caused by transit. This is an area where light-rail transit has distinct advantages over any other option. It typically can carry nearly as many passengers during peak periods as heavy rail systems. Also, light rail systems typically have more stops than do heavy rail systems, which usually emphasize end-to-end travel across a system. Further, light rail has the distinct advantage over the other options in that it can be run during off-peak periods for
relatively low marginal operating costs. So off-peak ridership is likely to be much higher for light-rail than in the other options. One should note that here again the design of the busway becomes critically important. To the extent that it can be made more like BRT, higher levels of benefits will accrue.

In terms of land development potential, this will follow a distinctive pattern. Land development is generally thought to be a function of residential, retail, and commercial activity. Residential activity attributable should be driven by travel time and transportation cost savings, while retail activity and commercial activity will build off residential activity but also will include total ridership, the number of stops, the cost of development and other factors. In this area, both rail options are strong. Examples like the Baltimore "air rights" building and other development in the Baltimore-Washington corridor along rail transit lines illustrate the potential for transit-oriented development around rail. Other areas experiencing strong TOD growth along rail transit lines include Seattle, San Diego, Atlanta, downtown Cleveland, and the outer suburban areas of Miami. Though development around busways isn't likely to be as strong as in rail areas because of their traditional design, new BRT systems may produce strong development. Because they are tied to land development potential, the joint development and property tax transfer benefits attributable to transit will be greatest with rail options, somewhat less so with busways and least of all with roadway improvements.

4.2.3 External and Transfer Impacts

With regard to job accessibility, air quality, and development costs at employment nodes, each of these impacts is likely to be directly related to peak period ridership. Since rail systems may move more people during peak-hour periods, accessibility and air quality effects should be greater. Also, many buses still require the burning of fossil fuels, which reduces their air quality benefits (some electric buses are available, but the extent of their use is unknown at this time). Additionally, the ability of light rail systems to run "both ways" (toward downtown Minneapolis as well as toward Dayton and Rogers) during the peak period as well as their availability during the off-peak period further enhances job accessibility. The capacity of almost any transit infrastructure investment will tend to reduce the need to build additional parking in development nodes. Noise and road vibration will be minimized through the use of busways and light rail systems. Heavy rail systems will reduce the amount of car noise, but at the cost of a heavy train moving through the corridor. One thing that should be noted is that these effects are strongly dependent on system design. A well-designed heavy rail system may not be markedly louder than a busway or light rail system. Finally, employment and income growth due to system construction will be related directly to the cost of the project. Therefore, the impact is likely to be greatest with rail systems due to their more substantial cost.

4.3 Summary

In summary, independent of capital costs, which can vary considerably for each option, investment in any of the three major transit options is likely to produce economic benefits to citizens in the Highway 81 corridor. According to this analysis, the light rail option seems to produce the greatest benefits across all of the likely economic impacts. Busway and rail transit options produce somewhat lower benefits, with busways producing slightly better user impacts and rail producing slightly greater economic development. Roadway alternatives produce lower economic impacts with notable exceptions in the area of economic development impacts.
5 Governance

Planning for multi-jurisdiction transportation corridors creates substantial governance challenges. No longer can a single jurisdictional agent exert control over corridor development. Instead, many parties come to the problem of developing the corridor, each with their own needs and desires regarding design, construction, maintenance and operations of the transportation infrastructure. At the start of the project, Highway 81 consisted of a 4-lane urban thoroughfare through northwest Minneapolis and south Robbinsdale widening to a 4-lane urban highway in north Robbinsdale. The following institutions have interests in the development of this corridor:

- Cities (Minneapolis, Robbinsdale, Crystal, New Hope, Brooklyn Park, Osseo and Maple Grove);
- School Districts (Minneapolis, Osseo-Maple Grove and Robbinsdale);
- Hennepin Parks;
- Hennepin County; and
- Transit (Metro Transit and Maple Grove’s private transit system).

There are thus substantially varied interests regarding development decisions. The inner ring suburbs of Robbinsdale and Crystal, along with Minneapolis and Osseo are “landlocked,” having been encompassed by the growth of other suburbs. The primary concerns of these jurisdictions seem to be in the areas of infill development and redevelopment of blighted areas, along with the need in Minneapolis, Robbinsdale and to a lesser extent Crystal, for a secondary major arterial to move residents to work and shopping/leisure nodes.

The outer ring suburbs of Maple Grove, Brooklyn Park, Dayton and Rogers have relatively large tracts of land that are still developing (for Brooklyn Park these tracts are mainly to the east of the Highway 81 corridor). The primary concerns of these outer-ring suburbs are in providing a smooth journey to work for residents to encourage new residential development. The school districts and Hennepin Parks are possibly concerned with the capacity of the corridor to move a significant volume of people in the safest possible manner. This potential mismatch of objectives can produce significant challenges for overall corridor planning and management. However, the presence of Hennepin County as an encompassing entity may help direct the decision making process. Commissioner Opat’s ability to create and convene the Northwest Corridor Partnership is evidence of this ability.

5.1 City Perspectives

Each city along the corridor has particular areas of interest. To highlight the potential problem this might cause in project planning, and to emphasize the need for communication and coordinated planning, the interests of Maple Grove, Osseo, Brooklyn Park, Crystal, Robbinsdale and Minneapolis, as posted on the Northwest Corridor Partnership web site, are highlighted below.

5 www.northwestcorridor.org
5.1.1 Maple Grove

Maple Grove is a fast-growing community served by the junction of Interstate Highways 494 and 694/94. The early development of Maple Grove Township followed the Burlington Northern Railroad and former Highway 152 (now Highway 81), which also was an early wagon route to Wright County. The interstate highways have supported the more recent growth of Maple Grove. Highway 610 will cross the northern part of Maple Grove, from Highway 169 to I-94, sometime around the year 2020.

The most significant development issues for Maple Grove surround the Gravel Mining Area, which comprises some 2,000 acres of gravel mining activity and is otherwise unoccupied land. The City adopted the Gravel Mining Area Special Area Plan in 1996, and envisions a dense, compact, and mixed-use environment that blends traditional suburban elements with more intense urban neighborhoods. Highway 81 runs along the northern boundary of this area.

Additional undeveloped land lies further west on Highway 81, where the City’s Comprehensive Plan envisions lower density residential uses. Part of the Elm Creek Park Reserve lies in Maple Grove, which is linked by a recreational trail to the Coon Rapids Dam Regional Park on the Mississippi River.

5.1.2 Osseo

The Comprehensive Plan Update for the City of Osseo identifies a Central Business Area along Highway 81 designated with a broad range of commercial and institutional uses. The City’s design standards for the Central Business Area seek to “unify the Highway 81 corridor with appropriate design guidelines and consistent streetscape.” There is also a manufacturing and industrial use area on the south side of Highway 81, and the Plan Update seeks upgrading and buffering of the buildings and parking lots in this area to promote more compatibility with the community.

5.1.3 Brooklyn Park

Brooklyn Park is Minnesota’s sixth largest city, and is only two-thirds developed. The major new development in the city relates to the construction of the Highway 610 Corridor, which will serve as a cross-town, east-west link for the north metro area. The City projects that upon completion this year, the 610 Corridor will produce more than 6,000 new jobs, and $400 million in new investments.

The City’s Comprehensive Plan identifies a significant amount of land along the Highway 81 Corridor for “reinvestment opportunities.” Most of the available land for reinvestment is designated for industrial uses. Less land is available for commercial or residential uses in this Corridor. Brooklyn Park also has several parks near Highway 81, including Bass Creek Park, Shingle Creek Park, and Greenhaven Park. Hennepin Technical College and North Hennepin Community College are also located close to the Corridor.

5.1.4 Crystal

Crystal is a fully developed residential community. There is essentially no vacant land with which to increase the City’s tax base. The Highway 81 Corridor is the top redevelopment priority area for the City of Crystal. The City’s Comprehensive Plan envisions new mixed use developments, combining residential, office, and retail uses, oriented to Highway 81 and extending from the Crystal Town Center area at the Bass Lake Road/West Broadway intersection.
The City's Comprehensive Plan identifies needed improvements to Highway 81, including realignment of frontage roads and construction of left turn lanes. Similar to the approach envisioned by the City of Robbinsdale, Crystal identifies landscaping improvements to Highway 81 as an important step to create more of a parkway/boulevard treatment, especially from 47th Avenue to Corvallis Avenue. The City would also like to see a gateway feature near the 56th Avenue intersection, and a more landscaped entrance to the Crystal Airport.

The Crystal Comprehensive Plan identifies the Highway 81 railway corridor as an opportunity for alternative transit. The City has also identified a need for a transit hub near the intersection of Douglas Drive and West Broadway.

The Crystal Airport occupies a large site adjacent to Highway 81. The City recognizes that the Airport is likely to remain for the foreseeable future, at least the next twenty years. The Plan indicates that if the airport were to relocate, this site would be the focus of redevelopment for housing and employment uses. The City acknowledges the need for improvements and enhancements at the airport, along with some landscaping and buffer treatment to mitigate the noise and view impacts on the adjacent residential areas.

5.1.5 Robbinsdale

Although developed primarily as a residential “bedroom community,” the city has a distinct downtown commercial area along West Broadway between 40th and 42nd Avenues. Three shopping centers are located in Robbinsdale along Highway 81. They include the Wards/Terrace Mall/Terrace Theatre at 36th Avenue, and the Robin Center Mall and the Town Center Mall at 41st Avenue. North Memorial Medical Center is also a major Robbinsdale institution on Highway 81.

The City has developed a proposal to change the role of Highway 81 from a highway facilitating rapid vehicle movement through downtown Robbinsdale to more of an urban parkway. The project would use street re-alignments, landscaping, lighting, and boulevard treatment to establish this parkway effect. Together with cross street improvements, this reorientation of Highway 81 is envisioned to unify the downtown area and create a more pedestrian and transit-friendly, village-like atmosphere.

The Hubbard Avenue Transit Center (Hubbard Market Place) is a major new project in downtown Robbinsdale that will combine transit service improvements with a retail marketplace. There are several locations along Highway 81 in Robbinsdale where longer term redevelopment projects could take advantage of underutilized land for new in-fill residential or commercial construction that is oriented to an urban parkway treatment.

5.1.6 Minneapolis

Minneapolis has a strong interest in revitalizing Lowry and Broadway Avenues, which help connect Highway 81 to downtown Minneapolis and the Warehouse District. Revitalization efforts in the Northwest Corridor will compliment the significant Minneapolis investment in the Humboldt Greenway and other projects in North and Northeast Minneapolis.

5.2 Implications of Governance Decisions

The choice of governance of the corridor will affect the potential success of any transportation investments, and of surrounding developments. Given the number of jurisdictions involved, and the difficulty inherent in piecing transit funding together, maintenance and the types of
community communication and cooperation that are developed in these early stages will affect future corridor improvements.

Governance issues might affect the outcomes of the corridor design process in several ways. Citizen involvement is necessary to ascertain how each community expects the corridor to be managed. This in turn can affect the economic impacts and finance options available to a project. Implications of these choices are explored in the respective sections of this paper.

A particularly useful method for bringing these issues to the table, and obtaining consensus around the preferred options available given these trade-offs, is a Joint Powers Agreement. The Northwest Corridor Partnership has created a means of communication and a possible route to cohesive governance structure over the corridor, as it is a group composed of representatives from local businesses and city, county, and regional governments, but there is no Joint Powers agreement in the corridor at this time. Creating such an Agreement would generate substantive discussion about goals and objectives for the corridor, codify common understandings and ensure continued participation. As the cities of Dayton and Rogers are not currently participating in the Northwest Corridor Partnership, any permanent governance solution will require their inclusion.
6 FINANCE

This component of the framework stresses the need for creative public and private financing in new transportation projects. Further, the framework calls for integrated transportation and land use planning and financing. Both the governance problem and economic effects of corridor development have a bearing on the ease and method of financing a proposed solution. There are several different sources of funds available to finance a transportation infrastructure investment. However, some if not most require at least implicitly a governing body for the corridor that can be a sole authority. Also, the range of potential economic impacts and their monetary implications for the governing authority will help determine the range of and types of financing that are available for the initial capital investment.

Financing must be considered for both capital costs and operations and maintenance (O&M) costs. Capital costs would include the project design, work to prepare the corridor, guideway construction, station construction, vehicle purchase, and development of maintenance shops and storage yards. O&M costs include the daily operation of the facility, maintenance of the vehicles and guideway, plus all of the administrative costs associated with the service. One advantage of a busway alternative over rail transit is generally lower costs. While the specific costs for the Highway 81 corridor will depend on local conditions, comparisons in other cities have found that capital costs for a new busway are less than half the cost of new light rail service. Busway O&M costs are also typically lower. This is particularly true if the bus operations can be structured as an extension of the existing bus service, thereby reducing costs associated with management, engineering and vehicle maintenance.

6.1 Sources of funds

In discussing the financing options, it is necessary to differentiate the sources of funds from the techniques of obtaining funds. Ultimately, the funds to provide must come from individuals. The question is which individuals provide the funds and through which institutional arrangement. Broadly speaking, there are two institutional arrangements: private funds and public funds.

Private funds for development typically come from the developer or from a private financial institution in the form of a loan. Loans are essentially the pooling of funds from several private individuals. The financial institution pools these funds and loans the money to the developer. While this report will not go into detail regarding private funds, it should be noted that private funds are the oldest form of development finance.

Public sources of development capital include many forms of taxes: property taxes, sales taxes, income taxes, and other taxes. Property taxes are a dominant source of revenue for local governments, sales taxes and income taxes are the primary sources of state revenue. The federal government gets most of its revenue it can apply to discretionary (non-entitlement) budget items from income taxes with a smaller amount from selective sales (or excise) taxes. Ultimately, financing techniques that involve local governments are most often tied to property taxes, while techniques that involve state support are usually tied up in sales taxes and income taxes. When analyzing public sources of capital, there are at least four important criteria to take into account:

1. Economic Incidence (which income groups bear the burden of funding the project);
2. Economic Efficiency (measured by the excess burden of the tax);
3. Revenue Adequacy; and
The last two criteria relate mainly to ongoing sources of revenue. Since Transit Oriented Development (TOD) most often relies on public funds for initial capital investment, this section will not discuss revenue adequacy or collectability in detail.

The property tax takes two principal forms in the state of Minnesota. First, residential homesteads are taxed and second, business properties and equipment are taxed. The burden of the residential property tax (after the state property tax refund is applied) tends to be proportional or slightly regressive. By proportional, it is meant that individuals in higher income brackets pay the same percentage of their income in residential property taxes as do individuals in lower income brackets. A regressive tax is when individuals in higher income brackets pay a lower percentage of their income in a tax than do individuals in lower income brackets. Individuals in the lowest income bracket pay (bear the residential property tax burden at the rate of) 3.5 percent of their income (since these individuals are most likely renters, they bear the burden indirectly through paying increased rents). By contrast, individuals in the middle income brackets pay about 2.3 percent of their income and those in the upper income bracket pay 1.9 percent of their income in residential property taxes. Essentially this means that while there is a slightly greater burden put on low income individuals, essentially the residents of a jurisdiction "split" the costs of funding a project using property taxes. In terms of excess burden, the residential property tax tends to have a relatively low loss in efficiency. There is some loss in efficiency due to an increase in the relative price of housing capital to other forms of capital. To the extent that capital is willing to and able to flow from the housing sector, it will flow to other investments. This tax-induced shift in investment patterns represents a loss of economic efficiency; the shifting of economic activity due strictly to the levying of a tax is called the excess burden of the tax. The business property tax has a similar incidence to the residential property tax, being proportional to slightly regressive. However, the excess burden of the business property tax is higher due to greater mobility of capital in the business sector.

Consumption taxes are the next major source of public capital. The most prominent form of consumption tax is the state general sales tax, levied on the majority of retail transactions. The general sales tax is the most regressive of the broad-based taxes (broad-based taxes are those that apply to the majority of the population). By way of comparison with the residential property tax, those in the lowest income bracket pay 4.6 percent of their income in sales taxes while those in the highest income bracket pay 1.2 percent of their income. So a far greater burden for financing public programs falls on lower income individuals when using the general sales tax. The extent of efficiency loss when using the general sales tax to fund projects depends on the level of exemptions provided for in the tax. One can show that if a general sales tax is levied uniformly on all goods, there is very little excess burden due to the tax. Another form of consumption taxes are excise taxes. Excise taxes are sales taxes levied only on a specific product or service, for example a tax on sales of cigarettes. These taxes tend to be fairly regressive. The Minnesota Tax Incidence Study estimates that individuals in the lowest income bracket pay 2.2 percent of their income in excise taxes while individuals in the highest bracket pay a mere 0.2 percent of their income. Excise taxes also have a much higher excess burden than do general sales taxes due to their nature. Because they tax only one specific product or service, they cause the prices of those

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products to rise relative to the prices of all other goods, causing tax-induced shifts in behavior. Excise taxes are the least efficient source of public funds for capital projects.  

The final source of public funds is the income tax. Once again, there are income taxes for individuals and taxes on the income of businesses. The state individual income tax is a fairly progressive tax in the state of Minnesota, with low income individuals paying an estimated 0.6 percent of their incomes (the negative number is largely due to refundable tax credits) and high income individuals paying 5.9 percent of their incomes. The tax is also a fairly efficient tax. Since income is reduced by the tax, there is no change in the relative price of traded goods and services, so there is little excess burden. However, if individuals substitute leisure for work there may still be efficiency losses from the tax. The state business income tax takes the form of the corporate franchise tax, which is a tax on business profits. The federal government also imposes individual and corporate income taxes. The federal individual income tax is the most progressive of any revenue source in the federal, state and local tax inventory. Individuals in the lowest income bracket pay an average tax rate of 4.2 percent while individuals in the top bracket pay an average rate of 28.8 percent.  

There are no reliable statistics on the incidence of the federal corporate income tax, but it is generally thought that it is a regressive tax similar to the state corporate tax.

6.2 Funding techniques

Moving from sources of funds, there are several techniques that are available to fund TOD. Each section will describe the techniques in relation to the level of government that provides the funding and will refer to the ultimate source of funds that the technique uses along with evaluating the technique in terms of its feasibility for the Northwest Corridor Project.

6.2.1 Local Government Funding Techniques

A relatively recently approved source of financing development projects is the use of property tax abatements. Property tax abatements are incentives given to potential developers in order to secure their commitment to develop a parcel of property. An abatement is an excuse from paying property taxes in a given year. Some states have allowed local governments to abate property taxes for years. However, Minnesota only enacted its enabling legislation in 1997. As part of the law governing abatements, the government can also defer taxes and abate interest and penalties normally due on deferred taxes. In Minnesota, any municipal government can grant an abatement to a property owner if it expects the benefits to the political subdivision of the proposed abatement agreement to at least equal the costs to the political subdivision of the proposed agreement and it finds that doing so is in the public interest (there are a number of definitions of the public interest, including providing public infrastructure). The municipal government must also hold a hearing to abate the taxes. The maximum period of abatement is ten years and a municipality may only abate up to 5 percent of its current levy or $100,000, whichever is greater. The state also allows municipalities to securitize the abatements and sell bonds based on the sum of abatements granted to parcels of property. The proceeds of the bond sales can go to improve

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8 Note that the above discussion assumes a lack of externalities. Fisher shows how excise taxes can be used to offset the effects of existing externalities and actually enhance the allocative efficiency of a local economy.

parcels, acquire or convey land, and to reimburse a property owner for improvements made to the property. (Economic Development Statutes)

Abatements spread the cost of financing a project among residents of the jurisdiction granting the abatement. If the City of Crystal abates property taxes, all of the citizens outside of the abated property will bear a portion of the burden of the project through increased property taxes, regardless of the location of their property. If the City relies on other revenue sources, individuals paying those revenues to the City also would share in the burden. However, as we stated earlier, local revenue structures are heavily based on the property tax. To the extent that the incidence of the additional financing follows the incidence of the existing taxes, abatements would produce a slightly regressive financing burden on the residents of the jurisdiction that issues the debt.

The predominant technique for funding capital projects at the local level is the issuance of general obligation bonds. Bonds are securities sold by municipal governments to investors in exchange for a promise to repay the investors with interest over a specified period of time and on a schedule. In issuing general obligation (GO) bonds, governments pledge their full faith and credit to make the scheduled payments. This means that the government pledges to do anything within its powers to repay the investors on time and in full. In other words, all of its revenue sources are pledged to investors until the bond issue is repaid. This technique is a very tested method of obtaining funds for capital projects, but it has some limitations that must be discussed. First, in the state of Minnesota, debt of municipalities must be approved by a vote of citizens. If individual cities that make up the Northwest Corridor Consortium were to all have to win bond elections to fund capital projects, the likelihood of getting funding would be greatly reduced. In fact, two of the members of the Partnership (Maple Grove and Osseo) are part of Independent School District 279, which just passed a record bond issue that increased property taxes by $211 per month on a $150,000 home (Independent School District 279). It would be unlikely that they would gain approval for financing a project that would further raise property taxes on their constituents. However, Hennepin County could circumvent the election requirement by placing the capital project on their Capital Improvement Plan (CIP) and then obtaining a two-thirds vote of County Commissioners. Another impediment to the use of GO bonds is the debt limit placed on municipalities by the state. Statutes restrict the amount of net debt issued by a municipality to 2 percent of the taxable capacity (assessed value times classification rates) of the jurisdiction.

GO bonds have similar effects to property tax abatements, spreading the project costs among residents. This incidence pattern also has an impact on the choice of Hennepin County if it wishes to circumvent the voting requirement. If Hennepin County chose to use GO bonds, all residents of the county would bear the burden of the financing through increased property taxes.

An economic development tool that has become quite important in recent years is tax increment financing (TIF). TIF is a tool used by cities and other development authorities to finance certain types of development costs. Tax increment financing enables a city to use the additional property taxes generated by a new development to pay for certain development expenses. These expenses

10 There is also a requirement for a period of public comment and an ability of citizens to petition for a referendum. See Counties Statutes, Minnesota Statutes 1999, §373.40.

11 For cities of the first class (Minneapolis, St. Paul and Duluth) the limit is 2 percent unless the amount authorized by the city charter is higher. In no case can the amount of net debt exceed 3-2/3 percent. See Public Indebtedness, Minnesota Statutes 1999, §475.53.
may include items such as the costs of land acquisition and "write-down," demolition, site preparation, and construction of public infrastructure. Bonds are often used to finance the up-front costs, and the principal and interest payments on the bonds are paid for by future tax increments. The bonds issued are not subject to election requirements or the statutory debt limit. The property owner of the newly developed or redeveloped property continues to pay the full property taxes. However, under TIF, the city or development authority "captures" the additional taxes generated by increases in the property's value and can use the "tax increments" to pay the costs of development and public improvements (Program Evaluation Division).

The structure of TIF is shown in Exhibit 4. This figure shows both the geographic and financial structure of TIF. The left pane shows the geographic structure of TIF. TIF districts "overlay" parcels in a city. Once the city evaluates a parcel as substandard it creates a TIF district that includes the parcel. The city or its designated redevelopment authority then captures the assessed value of the property as shown in the right pane of Exhibit 4. In this figure, the assessed value of parcels in the area that will become part of the TIF district are growing at a given rate, say 2%, prior to adoption of the district. Once the district is established (shown by the thick vertical line) all revenue derived from increases in assessed value (the area between the dashed line and solid line) are "captured" by the district and can be used for improvements, debt service or administrative expenses.

Exhibit 4: Geographical and Financial Structure of TIF

<table>
<thead>
<tr>
<th>Blighted Parcel</th>
<th>Tax Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>TID</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td></td>
</tr>
</tbody>
</table>

TIF is widely used in the state of Minnesota. A recent report has estimated that 409 Minnesota cities and towns had established a total of 1,750 TIF districts. These districts captured almost $223 million in tax base during 1999, which is 6.19 percent of the state's total property tax base (Schroeder). Therefore TIF is an accepted tool for economic development. It is also a tool that does not require a vote of citizens (there is however, a requirement for a public hearing on proposed redevelopment plans). In these respects, TIF is a good option for the Northwest Corridor. However, there have been significant concerns voiced over the use of TIF and its effects on city finances (Wascoe). There seems to be a wariness of citizens about TIF and its perceptions as a subsidy to developers. Also, TIF is local and once again, variations in past spending and revenues can affect the likelihood of gaining public support for the use of TIF. Two
of the cities on the Corridor, Brooklyn Park and Robbinsdale, have already created TIF districts capturing over 16% of their total property tax base (Schroeder).

The incidence of TIF mirrors that of the property tax if TIF captures revenue from development that would have occurred without the use of TIF. In this case, the city is essentially foregoing property tax revenue in order to subsidize development. If TIF generates development that would not have taken place without the incentive, then the incidence pattern is more uncertain.

There are several techniques that can be enacted at the local level that involve the use of third parties to operate and/or finance the development. Most of these techniques do not produce new sources of revenue, but accelerate completion of projects through better matching the timing of expenditures and revenue. The first of these techniques is the use of certificates of participation (COPs). This structure includes a public transit authority and a nonprofit finance corporation. The structure of this financing tool is pictured in Exhibit 5. The flow of funds in using COPs starts when a nonprofit finance corporation is established to finance a project. The finance corporation then negotiates a lease agreement with the transit authority (Referenced by the parenthetical (1) in Exhibit 5). The finance corporation then sells bonds in the primary bond market in order to raise financial capital (2). The bonds are secured by three sources: a lease with the transit system sufficient to redeem the bonds as they mature; a reserve fund sufficient to make at least one scheduled payment; and a promise by the transit system to use subsequent years' grant funds to make the lease payments. It then orders capital goods from a manufacturer, paying with the capital raised through the bond sale (3). The capital assets are delivered to the transit authority through the finance corporation, which retains title to the asset (4). Finally, the financing is completed when the transit authority makes payments to the finance corporation, which "passes through" the payments to the bondholders (5) (Federal Transit Administration, September 1998).

**Exhibit 5: Structure of a COP Bond Issue**

COPs offer several advantages to cities developing transit systems. First, they free up funds that can be used to accelerate project completion. This is done because federal funds are no longer
needed to purchase capital goods. A simple example shows this: suppose that a transit system wants to purchase $30 million in rolling stock for a transit project. But the locality only receives about $15 million in Federal grant funds each year. Combined with local matching funds, this amounts to a maximum of $18 million available for the purchase. Issuing $32 million in COPs to finance the vehicle purchase would reduce the immediate impact on the transit system's capital budget, and spread the cost over the useful life of the capital asset. \(^\text{12}\) Exhibit 6 shows the impact of the COP issue.

**Exhibit 6. Financial Impact of COP Issue**\(^\text{13}\)

<table>
<thead>
<tr>
<th>Revenue (Expenditure)</th>
<th>Cash Flow (Year 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Rolling Stock</td>
<td>($30 million)</td>
</tr>
<tr>
<td>Reserve Fund Requirement</td>
<td>($3 million)</td>
</tr>
<tr>
<td>COP Proceeds</td>
<td>$32 million</td>
</tr>
<tr>
<td>Local Match for Reserve Fund</td>
<td>$1 million</td>
</tr>
<tr>
<td>Annual Debt Service</td>
<td>($2.85 million)</td>
</tr>
<tr>
<td>Federal Portion</td>
<td>$2.28 million</td>
</tr>
<tr>
<td>Local Match</td>
<td>$0.57 million</td>
</tr>
</tbody>
</table>

**Effect on Available Capital**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Federal Grant</td>
<td>$15 million</td>
</tr>
<tr>
<td>Federal Portion of Debt Service</td>
<td>($2.28 million)</td>
</tr>
<tr>
<td>Final Federal Grant</td>
<td>$12.72 million</td>
</tr>
<tr>
<td>Original Local Match</td>
<td>$3 million</td>
</tr>
<tr>
<td>Final Local Match</td>
<td>$2.544 million</td>
</tr>
<tr>
<td>Original Total Capital</td>
<td>$18 million</td>
</tr>
<tr>
<td>Final Total Capital</td>
<td>$15.264 million</td>
</tr>
</tbody>
</table>

As Exhibit 6 shows, a city can pursue the transit system expansion while maintaining the majority of their operating capital. As noted in footnote 14, this benefit is pertinent for most forms of financing that use leverage (borrowing). However, a second benefit of COPs is that unlike the issuance of general obligation bonds, the issuance of COPs does not have to be voted on directly by the electorate. However, it should be noted that the electorate can use their referendum powers to block payments to the finance corporation if they feel the arrangement violates their values or is too expensive (Johnson and Mikesell).

There are two main disadvantages of using COPs: the first is that the arrangement would require each municipality to yield some decision making power to the transit authority and finance corporation that must be formed to make this arrangement work. The second is that borrowing costs for COPs tend to be somewhat higher than for general obligation bonds. This is due at least in part to the absence of a full faith and credit guarantee (Johnson and Kriz).

Two financing techniques that are similar to certificates of participation are the Pickle Lease and the cross-border lease. Both of these techniques are leases and both require the establishment of a

\(^{12}\) Additional assumptions are a 20% local match requirement and an interest rate of 8.91%. This example is adapted from Innovative financing techniques for America's transit systems. http://www.fta.dot.gov/library/policy/IFT/iftcov.htm, Chapter 1.

\(^{13}\) The impact is similar for most techniques that use leverage such as general obligation bond issues and leveraged leases.
transit authority. The Pickle Lease (named after Senator J.J. Pickle, one of the sponsors of the bill that enabled this technique) is another type of leveraged lease. Exhibit 7 shows the structure of this technique. In the first stage of this transaction the transit authority purchases the capital asset from the manufacturer or builder, paying with federal transit grants and local matching funds. Investors then secure a loan for up to 75 percent of the value of the asset and combine this with their own equity to purchase the equipment from the authority. They assign the title from the manufacturer to a Lessor Trust (usually a large bank or savings institution). The transit authority then enters into an agreement with the Lessor Trust and deposits sufficient funds into a defeasance account in a secure institution (usually referred to as the Trustee Bank) to make the required lease payments, as well as a potential early buyout payment.\textsuperscript{14} This defeasance and early buyout is usually about 95% of the proceeds of the sale of the equipment. From this defeasance account the Trustee Bank makes periodic payments to the Lessor Trust, which passes them through to investors. The financial benefit to the transit authority from Pickle Leases is the difference between the sale value and the net present value of the lease payments. Most often this is somewhat less than 5 percent of the sale value. After financial and legal advisory fees are deducted, the typical Pickle lease results in a net financial benefit of between 2.5 percent and 4.5 percent of the sale value.\textsuperscript{15}

\textsuperscript{14} This is a dollar amount that can be used to pay investors a lump-sum at a specified period of time to close the lease.

\textsuperscript{15} A Pickle Lease was used by the Bi-State Transit System in St. Louis to purchase LRT vehicles in 1995. The transaction size was $59 million with a present value net benefit of $3.835 million. See Innovative financing techniques for America's transit systems. [Website](http://www.fta.dot.gov/library/policy/IFT/ifcov.htm), Chapter 2.
The cross-border lease is similar to a Pickle Lease, but in this case the investors are foreign. The foreign investors can take tax benefits in their own country from the purchase of foreign assets (these transactions are often tied to purchases of equipment from the country sponsoring the transaction, so they are economic development tools of a sort). These tax benefits are passed on to transit authorities in the form of lower lease payments. Therefore, the amount that must be deposited in a defeasance account is lower. In other words, the present value benefits are higher with cross-border leases. However, the cost of structuring these forms of leases is much higher, producing a lower net benefit to transit authorities.\(^\text{16}\) Also, cross-border leases are much more risky and can be "unwound" due to several different problems.\(^\text{17}\) Because of the risks involved with cross-border leases, they probably should not be a primary source of funding for the development of the Northwest Corridor. However, if the Corridor Partnership feels that issuance

\(^{16}\) Of the cross-border leases reviewed by the Federal Transit Administration through 1996, the average net benefit was 3.6 percent of the total transaction value, whereas the net benefit averaged 4.78 percent for Pickle Leases.

\(^{17}\) Unwinding means that lessors must be repaid faster than the lease terms due to some irregularity. This creates a problem because the transit authority would have to pay back some of the net benefits due to the accelerated payment. For a sample terms sheet for a cross-border lease (in this case a Japanese Leveraged Lease) including a list of events that would trigger an unwinding, see Innovative financing techniques for America's transit systems. [http://www.fta.dot.gov/library/policy/IFT/ifcov.htm](http://www.fta.dot.gov/library/policy/IFT/ifcov.htm), Appendix A.
of general obligation bonds and/or TIF options are not feasible, COPs or Pickle Leases may be good options.

Another option for local governments is to use turnkey contract methods of building and operating transit systems. There are many types of turnkey contracts in use today. The goal in using turnkey contracts is to accelerate project completion, allowing for the most efficient method of contracting. The simplest contract is called "Build/Transfer" (B/T). In B/T, the contractor builds a facility, then transfers it to the owner. Once the project is completed, the owner inspects and accepts it. This usually ends the relationship between owner and turnkey manager.

A "Build/Operate/Transfer" (B/O/T) contract is somewhat more complex. The builder is contracted to operate the facility for a time after construction, then to transfer it to its owner. This mechanism has been used particularly with new light rail and rapid rail transit system construction. New rail transit systems tend to be unique, and they may take a decade or more to complete the first operable portion. The turnkey manager is most often the designer of the transit equipment (vehicles, control systems, etc.). By agreeing to operate the system for a time after its completion, the turnkey manager demonstrates that the system can operate within the parameters specified in the turnkey contract. Usually, the operation portion of the contract is relatively brief—-not exceeding five years.

Beyond this level are contracts known as "Super Turnkey." They involve the initial design, construction, operation, and transfer, but they may also include maintenance, financing, or a lease. In a structure known as Design/Build/Operate/Maintain (DBOM) the turnkey manager becomes a permanent contractor to the transit operator, undertaking to operate and maintain the new transit system, possibly for all of its useful life. In a super turnkey project, the manager may:

- Maintain the equipment for a specific time;
- Finance equipment purchases; and
- Lease the completed asset to the transit authority.

There are several potential benefits with turnkey projects. First, a transit authority may be unfamiliar with all of the technical requirements of the project, or it may not have sufficient staff to effectively manage the project. Second, the transit authority executes a contract with only one entity. This means that the authority does not have to negotiate and monitor several different contracts, reducing administrative costs. Second, the contract generally is a fixed-price contract. Therefore, the contractor bears the risk of rising labor and raw material costs. Third, if the project is rail-based, several contractors for rolling stock are foreign (e.g., Siemens/Duewag of Germany, Breda of Italy, and GEC-Alsthom of France). Executing a contract for forward delivery of rolling stock assets involves some foreign exchange risk, which transit authority staff may not have experience managing. A turnkey project allows the contractor to hire experts to enter into foreign currency transactions to mitigate these risks. Finally, the turnkey operator can package financing to produce savings to the transit authority.

The Environmental Protection Agency has long promoted public/private turnkey arrangements for such projects as solid waste management, wastewater treatment plants, and drinking water supplies. These projects are similar to transit projects in that they are large dollar value locally administered projects. Case studies of these projects identify the benefits as follows:

- Lower capital and operating costs;
• More rapid project completion;
• Better or more comprehensive product performance guarantees;
• Access to sophisticated technology and methods;
• Flexible financing;
• Risk sharing; and
• Fixed price contracting.

The major disadvantages associated with turnkey contracts are risks associated with project completion and financing. There are examples of turnkey projects which were awarded on the basis of an attractive financing arrangement, only to have the project go unfinished once the financing failed to materialize or the project timeline became so long that it was more profitable for the contractor to "walk away."\textsuperscript{18}

There are three ways that local governments can leverage federal grant funds to complete capital projects. The first is the Grant Anticipation Note (GAN) for transit projects and/or the Grant Anticipation Revenue Vehicle (GARVEE) for federal-aid highway projects. The GAN is a way of capitalizing future Federal grant funds. This means that the transit operator pledges expected Federal operating and capital grants along with the state and local match to investors in exchange for capital at the start of a project. The capital is obtained through selling bonds to the investors. The basic structure of a GAN issue is shown in Exhibit 8. Investors receive a pledge of future grant revenue and purchase bonds from the transit operator, who uses the proceeds of the bond sale to fund the project. As the federal grant funds and match are received the transit operator passes through the proceeds to investors.

\textsuperscript{18} This section borrows heavily from Innovative financing techniques for America's transit systems. [Link](http://www.fta.dot.gov/library/policy/IFT/iftcov.htm), Chapter 4.
GANs have been used in some transactions for short-term financing. Longer-term GANs have not been used as they would carry risks that the federal grant program would not be authorized, along with the normal risks of repayment. In this case, investors would likely demand a secondary source of repayment to back the bond (called a “backstop” in the transit finance literature). (Federal Highway Administration, Summer 1998) However, use of shorter-term GANs could possibly produce a better match of expenditures and revenue, producing cost savings.

Another promising way to leverage federal dollars is through joint development of transit related assets. Joint development allows local transit agencies to use federal grant funds and the assets once acquired with these funds to also support “transportation projects which enhance the effectiveness of any mass transportation project and are physically or functionally related to such mass transportation project or which create new or enhanced coordination between public transportation and other forms of transportation, either of which enhance urban economic development or incorporate private investment including commercial and residential development.” (49 U.S.C. 5309(a)(1)-(5))

This means that local agencies can capitalize on the increased value of property acquired for their transit service. The increased value is derived from transit’s role as a mover of people and the economic growth of communities served by transit. The agencies can do the following with property acquired for transit capital improvements:

- Sell property as excess for non-transit use;
- Lease the property for incidental, non-interfering use by others while the property is held for a future identified transit use; or
- Undertake a transit-oriented joint development on the property

In each of these cases, the transit agency retains the proceeds of these actions as program income. Leasing can also pertain to right-of-way acquired as part of the project. The Federal Transit Administration makes the determination of incidental and non-interfering use.

### 6.2.2 State Funding Techniques

The major state transportation funding source is from annual appropriations. However, to date the vast majority of biennial appropriations have gone to highway construction projects. Transit spending has been relatively meager. In biennium 2000-2001 the all-funds own-source budget was $2.9 billion, transit projects received only $142 million, with $60 million accounted for by the Hiawatha corridor light-rail project. The theme with state funding seems to be providing matching funds only. A parallel for Northwest Corridor decision makers may be found in the Northstar Corridor, Minnesota's first experiment with commuter rail. Initially faced with much skepticism, Northstar Corridor officials pressed for federal money. Once in hand, the state agreed to partially match the federal dollars. Given the Governor's support for the Hiawatha corridor project, if the Northwest Corridor's leadership can press for federal grants and show local support, they can win state participation.

As with any state program, inevitably the source of funds is the sales or excise taxes. In Minnesota, the funding for highway and transit construction is largely provided by the highway users excise tax (gas tax). This tax is thought to be somewhat regressive, though it does provide a way for users to pay their true cost of highway use.

There is one other potential source of state funding. This is the Transportation Revolving Loan Fund (TRLF), established by the state in 1997 as a state infrastructure bank. The 1995 National Highway System Designation Act (Section 350) established the State Infrastructure Bank (SIB) pilot program. Designed to complement traditional transportation funding programs, SIBs gave states significantly increased flexibility in project selection and financial management. Much like a private bank, a SIB uses seed capitalization funds to get started and offers customers a range of loans and credit enhancement products. This structure allows the TRLF to act to reduce gaps in available financing by providing loans to local transit agencies and to address barriers in financing by lending to larger entities (such as turnpike authorities). The prototypical structure of a SIB is depicted in Exhibit 9. In this structure, federal transit funds and state matching funds are deposited into a capitalization reserve account. This account is used to leverage resources through borrowing from capital markets. These funds then become available to be lent out to eligible projects. The funds revolve because as loans on older projects are repaid, the funds

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19 There are additional funds accounted for in the capital budget, however the State Transportation Improvement Program only expects $337 million in state and local funds to be spent on transit in 2000-01, most of which is matching funds for federal grant programs. There were also additional funds made through the 2000 supplemental budget agreement, but most of those funds went to specific projects.
recycle into the capitalization reserve fund and can be used to obtain more capital for funding future projects.\textsuperscript{20}

**Exhibit 9: One Possible State Infrastructure Bank Structure**

![Diagram of State Infrastructure Bank Structure]

Minnesota’s experience with the TRLF is somewhat abbreviated. Based on the initial authorization of SIBs on the federal level, the state capitalized both the transit account and a road account of the TRLF in 1997. Eligible projects include pre-design studies, right-of-way acquisition, road and bridge maintenance, enhancement items, and transit capital projects. The first loan made under the TRLF provides an example of the use of these funds and their benefits:

1) Metropolitan Council - PFA (Public Facilities Authority) will use approximately $4.1 million from TRLF to leverage a $17,080,000 bond issue; PFA will then loan approximately $21,025,000 to Met Council for approximately 53 transit capital projects ranging from bus purchases to park and ride lot construction; Interest rate on the loan is 2.71%; Repayment term is variable (depending on useful life of assets) over 20 years; Repayment source is property taxes; Met Council will save approximately $4.1 million over issuing bonds itself. (Larsen)

The TRLF seems to be an interesting potential source of project funding for the Northwest Corridor. However, its future is very much in doubt. When TEA-21 was passed in 1998, the SIB program was continued in only four states. Because Minnesota was not one of those states, only

\textsuperscript{20} In some infrastructure banks, the projects are funded, then the loans are “securitized” and sold in the bond markets. This structure reduces risk somewhat for the investor resulting in lower interest costs for the bank.
federal monies released from earlier projects (along with any state monies appropriated to the fund) can be added to the Fund. Two projects were funded with the original capitalization of the Fund. Five other projects were approved in late 1999 but have not yet been funded. It seems as though the Minnesota Department of Transportation is waiting to see what the Ventura Administration will do in the way of adding further capital to the fund.\textsuperscript{21}

6.2.3 Federal Funding Techniques

The primary source of federal funds for transportation capital projects comes from the provisions of TEA-21, the Transportation Equity Act for the 21st Century. This law, enacted in 1998, provides funding for most of the major transportation programs of the U.S. Department of Transportation (U.S. DOT). Besides the usual sources of funding for transportation projects (Surface Transportation Program Funds, FTA formula grants, and FTA capital improvement loans and grants), TEA-21 contains a number of innovative finance provisions.

The first such program is the Transportation Infrastructure Finance and Innovation Act (TIFIA). TIFIA is a new Federal credit program under which the U.S. DOT may provide three forms of credit assistance — secured (direct) loans, loan guarantees, and standby lines of credit — for surface transportation projects of national or regional significance. The program’s fundamental goal is to leverage federal funds by attracting substantial private and other non-federal co-investment in critical improvements to the nation’s surface transportation system. (U.S. Department of Transportation, May 2000)

Under TIFIA, the U.S. DOT awards credit assistance on a competitive basis to project sponsors including, for example, state departments of transportation, transit operators, special authorities, local governments, and private consortia. Letters of interest for TIFIA funds are taken once per year (the last round of letters of interest were taken in August 2000). Projects selected for funding must meet specific criteria including:

- Total eligible costs: At least $100 million or at least 50 percent of the state's federal-aid highway apportionment. If the project involves the installation of an Intelligent Transportation Systems (ITS) component, the total eligible costs must be greater than $30 million (the ITS component must be deemed to be an integral part of the project and not merely an ancillary component). The value of the requested credit assistance must not exceed 33 percent of eligible project costs.

- Transportation planning process: The project must be included both in the state's transportation plan and the State Transportation Improvement Program (STIP). For projects in metropolitan areas, the project sponsor must also demonstrate that the project is included in the metropolitan transportation plan.

- Dedicated revenue sources: The project financing shall be repayable, in whole or in part, from “tolls, user fees and other dedicated revenue sources.” The TIFIA also states that the sources of repayment funds for TIFIA credit instruments may include “tolls, user fees and other dedicated revenue sources.” The U.S. DOT generally has interpreted “dedicated revenue sources” to include such leves as tolls, user fees, special assessments, tax increment financing, and any portion of a tax or fee that produces revenues that are pledged for the purpose of retiring debt on the given project.

\textsuperscript{21} This section borrowed heavily from Larsen and Federal Highway Administration, March 15, 1999
• Rating opinion: Each applicant must provide a preliminary rating opinion letter from at least one nationally recognized bond-rating agency (such as Moody's, Standard & Poor's, or Fitch's). The applicant must be able to show that its senior debt obligations (those obligations having a lien senior to that of the TIFIA loan or the instrument backed by the TIFIA guarantee or line of credit) achieve an investment grade rating (Baa+/BBB+ or above). Therefore, even though a project may be selected for TIFIA assistance, this assistance cannot be provided until an investment grade rating from a major credit rating agency is assigned to the project’s senior debt obligations.

The second major federal program provided for under TEA-21 is the provision for Transportation Enhancement Activities (TE). The provisions for TE can be found both in the Surface Transportation Program (STP) and in the Urbanized Area Formula Program of the Federal Transit Administration. Section 1201 of TEA-21 requires that 10 percent of a state's STP funding be set aside for TE activities. These activities are restricted to the following activities:

• Provision of facilities for pedestrians and bicycles.
• Provision of safety and educational activities for pedestrians and bicyclists.
• Acquisition of scenic easements and scenic or historic sites.
• Scenic or historic highway programs (including the provision of tourist and welcome center facilities).
• Landscaping and other scenic beautification.
• Historic preservation.
• Rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals).
• Preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian or bicycle trails).
• Control and removal of outdoor advertising.
• Archaeological planning and research.
• Environmental mitigation to address water pollution due to highway runoff or reduce vehicle-caused wildlife mortality while maintaining habitat connectivity.
• Establishment of transportation museums.

There are two basic considerations for the funding of STP TE projects. First and obviously, the project must be on the above list of permissible activities, subject to the following exception. Activities which are not explicitly on the list may qualify if they are an integral part of a larger qualifying activity. For example, if the rehabilitation of a historic railroad station required the construction of new drainage facilities, the entire project could be considered for TE funding. Similarly, environmental analysis, project planning, design, land acquisition, and construction enhancement activities are eligible for funding. (Federal Highway Administration, December 17, 1999) Second, the project must relate to surface transportation. The state Departments of Transportation distribute the funds allocated under the STP TE program.
The FTA TE program requires a minimum of one percent of the part of FTA's Urbanized Area Formula Program (UAFP) funding for urbanized areas with populations 200,000 and over must be made available for activities that are transit enhancements. Transit enhancements are defined as the following activities:

- Historic preservation, rehabilitation, and operation of historic mass transportation buildings, structures, and facilities (including historic bus and railroad facilities);
- Bus shelters;
- Landscaping and other scenic beautification, including tables, benches, trash receptacles, and street lights;
- Public art;
- Pedestrian access and walkways;
- Bicycle access, including bicycle storage facilities and installing equipment for transporting bicycles on mass transportation vehicles;
- Transit connections to parks within the recipient's transit service area;
- Signage; and
- Enhanced access for persons with disabilities to mass transportation.

The metropolitan planning organization (MPO) that receives the UAFP funding distributes the TE funds, in this case the Metropolitan Council.

The third major source of funds derived from TEA-21 is the Transportation and Community and System Preservation program (TCSP), authorized in Section 1221 of the act. The TCSP program provides funds for planning and implementation grants, technical assistance and research to investigate and address the relationship between transportation, community and system preservation, and private sector-based initiatives. Activities eligible for TCSP funding include projects that:

- Improve the efficiency of the transportation system;
- Reduce environmental impacts of transportation;
- Reduce the need for costly future public infrastructure investments;
- Ensure efficient access to jobs, services and centers of trade; and
- Examine development patterns and identify strategies to encourage compatible private sector development patterns. (Federal Highway Administration, December 8, 2000)

Most local governments and MPOs can apply for TCSP grants. The application process is early in the year (the next cycle due date is January 31, 2001). The applications are reviewed by an interdisciplinary team consisting of individuals from transportation and environmental agencies. Congress can also designate specific TCSP grants.

Another source of federal funds for transit capital projects are Congestion Mitigation and Air Quality Improvement Program (CMAQ) grants. The primary purpose of the CMAQ program is
to fund transportation projects and programs in area that do not meet federal air quality standards and to maintain an area's progress in meeting those standards. The goal of the funding is to reduce transportation-related emissions. The following types of projects are eligible to receive CMAQ funding:

- Transportation activities in an approved SIP or maintenance plan;
- Certain types of transportation control measures, such as HOV or bus lane construction, employer based incentives, and programs for the provision of all forms of high-occupancy shared-ride services;
- Public private partnerships, including partnerships for construction and project management;
- Alternative fuels programs;
- Traffic flow improvements such as regional multi-modal traveler information systems, traffic signal control systems, freeway management systems, transit management systems, incident management programs, electronic fare payment systems, and electronic toll collection systems;
- Transit projects that can be expected to raise transit ridership;
- Bicycle and pedestrian facilities and programs;
- Travel demand management (TDM) programs, including market research and planning in support of TDM implementation, traffic calming measures, capital expenses required to implement TDM measures, operating assistance to administer and manage TDM programs for up to 3 years, as well as marketing and public education efforts to support and bolster TDM measures;
- Outreach and rideshare activities;
- Telecommuting programs;
- Fare/fee subsidy programs;
- Intermodal freight facilities improvements;
- Planning and project development activities that lead to construction of facilities or new services and programs with air quality benefits, such as preliminary engineering or project planning studies;
- Construction of facilities and purchase of equipment for inspection and maintenance stations;
- Magnetic Levitation Transportation Technology Deployment Programs; and
- Experimental pilot projects, provided that the project or program can reasonably be defined as a "transportation" project and that emission reductions can reasonably be expected "through reductions in vehicle miles traveled (VMT), fuel consumption or through other factors." (Federal Transit Administration, April 1999)
FTA evaluates proposals for CMAQ funding through a quantitative and/or qualitative analysis of the likely reduction in vehicle emissions. The state and the local MPO are responsible for screening proposals to generate a list of projects for that state’s nonattainment and maintenance areas. Currently, the Metropolitan Council is taking applications for CMAQ funding (the January 31, 2001 due date mentioned earlier applies to CMAQ funding also).

A final source of federal funds through TEA-21 is the Job Access and Reverse Commute Grants program. Within this program Job Access grants are intended to provide new transit service to assist welfare recipients in getting to jobs and training. Reverse Commute grants are designed to develop transit services to transport workers to suburban job sites. These funds are accessible by both governments and non-profit agencies. Eligible activities for Job Access grants include capital and operating costs of equipment, facilities, and associated capital maintenance items related to providing access to jobs. Also included are the costs of promoting the use of transit by workers with nontraditional work schedules, promoting the use of transit vouchers, and promoting the use of employer-provided transportation including the transit benefits. For Reverse Commute grants, the following activities are eligible—operating costs, capital costs and other costs associated with reverse commute by bus, train, carpool, vans or other transit service. (Federal Transit Administration, 2001)

7 Design

Project design has several effects on a project’s viability and success. Design will affect the economic impact of a project and determines available financing options. For example, a grade separated rail system may produce smoother, more efficient travel for passengers. However, a boulevard type roadway improvement is more likely to produce economic development along the entire length of the corridor. This difference in impacts also will translate into the most likely source of cash flows to the system that can be used for capital construction and maintenance of the system. Grade separated rail systems must be largely paid for through farebox revenue, subsidies from government units, and development revenue and property value increases derived around station nodes. Roadway improvements may produce gains in property value throughout the corridor that can be captured as a revenue stream for the corridor authority.

Further, the proposed governance structure will either limit or be limited by the choice of design. Governance may impact directly the choice of design in the corridor, having an effect on economic impacts and financing.

7.1 Transit Oriented Design

The Northwest Corridor Partnership is exploring potential design scenarios for creating transit-supportive livable communities within the Highway 81 Corridor. Each of the cities along the corridor has highlighted an area or areas that could support a concurrent development of residential, commercial, or transit hub space. Starting with ten focus areas, the Partnership selected four key focus areas to represent the range of suburban development patterns within the Corridor. Each area is defined by the walking distance from the center of the Corridor intersection where a transit center could be located (“walkability”) as well as current land use, area street networks, and business, park, school, or other destinations. The Partnership is exploring three different scenarios for each focus area, based on different transit system options, including a dedicated busway in the railroad right-of-way, highway shoulder lane bus service, or improved bus service on arterial routes.
7.2 Citizen Participation and Design

Residents and local leaders should be involved in developing ideas for investment decisions. Focus group participants and survey respondents, described in Section 3 (Citizen Participation) above, identified several areas as specific assets or liabilities on the corridor. These suggestions can serve as a guide to the planning process.

The focus groups listed specific businesses that serve as anchors or assets along the corridor. Those named included North Memorial Hospital, the Elim Lutheran Church, Cub Foods, and the Waterford Apartment Complex, a senior housing facility in Crystal. Also, when given the opportunity to name their “ideal” corridor, participants indicated a desire for an attractive parkway, with some even citing the lilacs that were planted along highway 100 when it was originally constructed.

Intersections that were named as problematic include 42nd Street, the “Devil’s Triangle” and the intersection with I-694. The median on the highway was listed as an asset by some (beautification potential) and a liability by others (collects trash). Appendix D contains summaries of the assets and liabilities listed by the three focus groups.

Specific design studies, based on areas identified by the Northwest Partnership as potential locations of concentrated development or investment, are in progress and should provide considerable data to this discussion when completed.

7.3 Road Design Analysis

Highway 81 has two distinct types of road cross-section. The first could be described as an urban section and the second would be best described as a rural highway. The following characteristics are common to each section:

Urban Section - North Minneapolis to Crystal

1. No median - undivided traffic,

2. Parking adjacent to roadway,

3. Sidewalks aligning street,

4. Multiple access points each block,

5. Traffic turning across lanes,

6. Signals located every one or two blocks,

Rural Highway - Crystal through Maple Grove

1. Divided highway,

2. No parking,

3. Wide shoulders,

4. Frontage roads,
5. Access limited to signalized intersections, and

6. Signals spaced half mile to mile apart,

The urban section is more indicative of a city street converted to a highway. The rural highway is more a highway that was modified to serve as a city street.

The type of road section will define the behavior of the driver in most cases. The average driver is governed by how safe they feel while driving, i.e. they will behave in a way that will not make them feel as though they are putting their lives in danger. Regardless of speed limit, people tend to drive at the speed they feel most comfortable at, given the road design.

Highway 371 (TH 371) between Little Falls and Brainerd is an excellent example of how drivers’ behavior is subconsciously affected by their surroundings. The highway has eight-mile stretches of two-lane, undivided highway separated by two-mile stretches of four-lane, undivided highway. The 85th percentile speed, or the speed at which 85 percent of traffic drives at or below, is less in the two-lane than it is in the four-lane. People feel safer in the four-lane (they have more options for recovery) and therefore drive faster.

The urban section defined above tends to slow traffic down naturally because of the number of traffic variables. Even without the frequent signals, pedestrians to a driver’s right, oncoming traffic to the driver’s left, potential merging traffic from each direction, people stepping in and out of their cars, etc. all cause the driver to proceed cautiously. When these potential hazards are removed, speeds increase.

Commuter drivers become the prototype with tourist type drivers at the other end of the spectrum. The typical structure, billboard, scenery or other distraction outside of the roadway will not affect the commuter. The tourist, or the driver new to the area, will take note of things adjacent to the roadway and be distracted by them. The commuter, being familiar and having a comfort level with their surroundings, will tend to drive faster than the tourist or driver new to the area.

7.4 Traffic Analysis

These same principles will govern how Highway 81 handles traffic under any redevelopment scheme and will therefore directly relate to the satisfaction of the driving public with the improvements that are made. Highway 81 is expected to handle the traffic flow of a rural highway while providing the access of an urban street. As discussed above in section 3, focus group respondents stated that it did not do either job well. However, survey respondents indicated that, outside of the intersection of highway 81 and highway 169, they did not find traffic to be a problem. This may be because the primary reported use of highway 81 was for local trips. Exhibit 10 shows that 67 percent of all respondents indicated they never use the highway for their work trip, while approximately 87 percent stated that they use the highway at least one day per week for errands, and slightly more than half indicate they use it at least one day per week for purposes other than work, school or errands. Exhibit 11 also shows how short these trips were, respondents (58 percent) reported their trips lasted no more than 10 minutes, and 81 percent report their trips take 15 minutes or less.
Exhibit 10: Reported Number of Days per Week Driving Highway 81, by Trip Purpose

Exhibit 11: Average Reported Trip Times on Highway 81

Obviously, these survey numbers do not stand by themselves. Additional traffic engineering studies should determine if these assertions represent actual use.
8 RECOMMENDATIONS AND LESSONS LEARNED

The analysis of the Highway 81 case study in the context of the SLPP framework provides us with lessons and ideas about how the model might be improved. A primary lesson is that an academic framework can teach us how to address a problem, but that reality rarely follows a prescribed pattern. Using the framework, including the recommended citizen participation, allows the development of recommendations and ideas from the local residents and community members who depend on the transportation amenity in their every day lives.

This section includes overarching recommendations and observations, as well as specific recommendations based on the model framework.

8.1 Overarching Recommendations

On March 7, 2001, SLPP sponsored a round table on transportation corridor redevelopment. Participants included representatives from the Federal Transit Administration, Minnesota Department of Transportation, Hennepin County and cities along the Highway 81 corridor. The proceedings are included in Appendix E. Some of the themes that emerged from the roundtable, applicable as lessons for current and future corridor planning efforts are:

- For corridors that affect multiple jurisdictions, it is important to get leaders from each place into the room to discuss issues and opportunities of development.

- Open communications between bureaucrats, planners and citizens is critical to project development and success. There is often a difference between what citizens are saying and what government thinks citizens are saying. Planners and politicians should carefully listen to what those affected by development really want from and in their communities. There may be difficulties in communication between planners and citizens because citizens may not understand what different types of development might look like when built. For this reason, showing a picture or otherwise presenting concepts might be more effective for some people, convincing them that density can be attractive, than merely using words to describe concepts such as transit oriented design.

- Funding for transit is difficult to piece together. For this reason, cooperation between communities and representatives from different (city, county, state, federal) governments is essential to get projects moving forward.

8.2 Framework Recommendations

The development of the alternatives for developing Highway 81 did not follow the logic of the framework. The framework would call for starting from citizen preferences, moving to an economic analysis, decision-making about governance and financing and then concluding the planning with the design phase. Using this as a point of reference, it becomes clear that certain trade-offs decisions have already been made implicitly. However, it also becomes clear that, using the analysis included here, the Northwest Corridor Partnership is in a position to make some key strategic decisions. Each area of the framework will be analyzed below in the context of some key recommendations.

8.2.1 Citizen Preferences

Finding support for transitway development will require significant outreach and educational efforts. The focus groups and citizen survey indicate that the Northwest Corridor Partnership may
be ahead of the curve in terms of redeveloping the entire corridor. A strong interest was shown in redesigning the “Devil’s Triangle” at Highway 169 and Highway 81, along with a preference for improving the signalization and landscaping along the highway, but there does not appear to be a strong demand for increased supply of transit, as most drivers use the road for short car trips. In addition, the survey indicated significant differences in opinion and use of the highway depending on whether the respondents lived in inner ring suburbs, such as Robbinsdale, or outer ring suburbs, such as Maple Grove. This context may restrict options available for corridor development, without a significant educational effort to gain support for a transitway.

8.2.2 Impacts

Light Rail or BRT provide the most positive impacts, but cost or citizen support may prohibit full realization of these benefits. This study indicates that the most positive impacts from corridor re-development would come from light-rail, or, potentially at a lower cost, a busway that resembles light rail, such as bus rapid transit (BRT). However, as noted above, citizens may not yet support the significant expenditures required for implementing these options, especially rail. In order to capture the benefits noted here, the Northwest Corridor Partnership should support lower cost options that will improve the aesthetics of the corridor while gaining as much of the benefits of a dedicated transitway as citizen support will allow.

8.2.3 Governance

The Northwest Corridor Partnership should create a Joint Powers Agreement that will allow it to determine common long-term goals and set up a structure that will allow financing of these options. The highway 81 corridor creates a terrific example of the challenges that are faced in any corridor setting, with a number of local jurisdictions plus subregional and regional governments all having an interest. The Northwest Corridor Partnership is a good start towards gaining the input and cooperation needed to successfully re-develop the corridor. However, with the amount of information that is now coming forward (citizen surveys, focus groups, design studies, traffic engineering) the Partnership now has an opportunity to create a strong structure that can oversee successful planning and implementation of an overall corridor redevelopment strategy. To do this, the partnership should create Joint Powers Agreements that consider all of the data that has been supplied to date, determine points of common understanding, identify common goals, and pledge to work together to achieve them. In creating these agreements, the partnership should consider the financing options available for each transportation goal, and work to develop a governance structure that will allow financing of these preferred options.

8.2.4 Financing

The Partnership needs to consider a number of the alternative financing options described in this report, and pursue those that have the most amenable governance structure. Financing is the most significant challenge facing the Partnership. This report sets forward a number of opportunities that would allow the jurisdictions within the Partnership to work together and leverage existing funds into innovative investment options. Tax Increment Financing (TIF) is the most common type of structure currently used, but the Partnership should consider other options that would not further strain the area’s TIF capacity. To do this, however, specific governance or investment structures may be necessary, and the Partnership should consider the benefits of creating this type of organization.

In addition, redevelopment of vacant buildings along the corridor should be done in cooperation with existing private sector interests. The Partnership has started this process by including
representatives from the private sector in its membership. This group should continue to work in tandem to stimulate new businesses, rather than draw away from existing shops.

8.2.5 Design

The Partnership has sought citizen input at an early stage, but faces a challenge in choosing a development option that meets both current and future demands. The continued design studies led by the Design Center for the American Urban Landscape in the areas identified by the Partnership will place it in a good position for designing any preferred option, as guidelines for design preferred by citizens will have been set. The challenge will lie in identifying that option that provides a unifying theme while also redeveloping the corridor in a manner that meets current expectations for smoother car travel and improved aesthetics, while also planning to meet future travel demands and development opportunities presented by a transitway.
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Appendix A: Focus Group Participants

City Council Reps:

Crystal:
Garry Grimes
Tom Krueger
Mayor Peter Meintsma

Brooklyn Park:
Sharon Feess
Lisa Eder

Robbinsdale:
Wally Johnson
Bob Zagaros

Maple Grove:
Irene Koskie
Mark Steffenson

Osseo:
Mayor Dan Sadler

Planning Commission:

Crystal:
Kris Graham
Richard VonRueden

Robbinsdale:
Steve Streitz
George Selman
Tom Ouellette

Maple Grove:
Brian Blanchard
Randy Hargiss

Brooklyn Park:
Sunny Fuller
Karl Peebler

Osseo:
Robb Olsen

Business Participants:

Killmore Electric:
Roy Palmer

American Inst. of Architecture:
Tom Van Housen
Appendix B: Corridor Names Suggested by Focus Group Participants

Participants were asked to name the County Road 81 corridor from two perspectives:

- **“As Is”** – as someone who lives, commutes, works, or owns a business near the road today.
- **“Best Case”** – as someone who has the authority and responsibility for marketing and bolstering the identity of this road.

Following below is the list of corridor names that were brainstormed during the three focus group work sessions.

<table>
<thead>
<tr>
<th>“AS IS” Corridor Names</th>
<th>“BEST CASE” Corridor Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop &amp; Go</td>
<td>North Star Parkway</td>
</tr>
<tr>
<td>Can’t get anywhere fast or efficient</td>
<td>North West Parkway</td>
</tr>
<tr>
<td>81 Corridor</td>
<td>Connects the hub to the great Northwest</td>
</tr>
<tr>
<td>Hodge Podge</td>
<td>North Metro Parkway</td>
</tr>
<tr>
<td>Many different uses, needs to be looked at as a whole corridor through all communities, as to what will go where, what the mix will be</td>
<td>Twin Lakes Parkway</td>
</tr>
<tr>
<td>Twin Lakes Parkway</td>
<td>Anything to do with the parkway theme</td>
</tr>
<tr>
<td>Corridor virtually starts at the point of the lakes</td>
<td>Northern Parkway</td>
</tr>
<tr>
<td>Confusion Highway</td>
<td>Jefferson Highway</td>
</tr>
<tr>
<td>Too many mixed uses; Different images from many cities</td>
<td>When Hwy 81 or 52 was built in 1935, the road that is now named West Broadway was called Jefferson Highway. So, let’s call it Jefferson Highway again</td>
</tr>
<tr>
<td>Rur-urban</td>
<td>Red River Highway</td>
</tr>
<tr>
<td>From one extreme to the other</td>
<td>Follows the ox-cart trails from St. Anthony falls to Red River settlements; Could evoke sense of history with commercial stops; Mix natural amenities and commercial uses</td>
</tr>
<tr>
<td>Piecemal</td>
<td>Up North Parkway</td>
</tr>
<tr>
<td>Get There Way</td>
<td>Make a consistent theme---loons, moose, rustic feel of lights, etc...</td>
</tr>
<tr>
<td>Utilitarian but not too exciting</td>
<td>Cities Boulevard</td>
</tr>
<tr>
<td>Fixer Upper County Road</td>
<td>Create a central theme; Commonalities in design and development; Connected by innovative, attractive transportation modalities; Destination places</td>
</tr>
<tr>
<td>Potential could/should be recognized</td>
<td>Wild Flower Way</td>
</tr>
<tr>
<td>Stop &amp; Go Road</td>
<td>Make the corridor much prettier and more functional, along the way and</td>
</tr>
<tr>
<td>Beware Drive</td>
<td></td>
</tr>
<tr>
<td>Danger Road</td>
<td></td>
</tr>
<tr>
<td>Congested Speedway</td>
<td></td>
</tr>
<tr>
<td>Have to stop and then you race to the next stoplight</td>
<td></td>
</tr>
<tr>
<td>State of Neglect Parkway</td>
<td>Traffic flow not smooth; Access not easy (long waits); Care and landscaping almost nil; you cannot</td>
</tr>
</tbody>
</table>
relax or enjoy your drive—view is not pleasant; Speed is too high; This is a secondary road; Railroad areas messy, long grass, not kept up
- Chaos Freeway
  Enter at your own risk
- Always Waiting
  Too much uncontrolled traffic; Too many unregulated access points; Confusing service roads
- Freeway Escape Route
- Very Old County Road 81
  Old ox-cart just tarred...no real potential for growth...now getting worn out
- Stop-A-Lot Road

when you get there
- Northwest Upper Parkway
  Reduced speed, parkway feel (trees, landscaping), pedestrian friendly
- Northwest Parkway
  Tree-lined divided highway; Increased pedestrian amenities, including pedestrian bridges; Reduced lights/crossings to improve speed and flow; Bus lane to improve mass transit
- Multi-modal Transit Parkway
  Dedicated bus/light rail expressway; Dedicated walking/bike corridor or trail; Transit stops/amenities at major landmarks; Highlight existing natural amenities and enforce with additional corridor plantings
- Greatway Parkway
  Efficient traffic flow; Easy access to major roads; Landscaped and cared for; Relaxing drive, pleasant view; Lower speed; Place to want to drive on
- Communities Parkway
  Bus or light rail transportation; Speed reduction; Walkway and bike path; Landscape center islands; Left hand turn lanes only where metered; Synchronized lights from 100 to 169
- Neighborhood Highway
  Road has the potential to make the transition from rural to city; To introduce or identify each city or area; Light rail potential
- Relax & Unwind Boulevard
  Synchronize the lights and lower the speed limit with landscaped boulevards to help relax, unwind and find something good; Rail use and busways
- Charming & Efficient Parkway
  Light rail, parkway!!!, mass transit, urban and rural alternating roadway; Keep from over-building and destroying the drivability of the roadway; Keep access links to/from the roadway clear and maneuverable;
Easy identification as to where to go, where you've been...etc...; Plan the road to work far into the future; Imagine the unbelievable and plan for it...this eliminates re-thinking, wasting time and energy

- Smooth Sailing Parkway
  No more stoplights, create overpasses where ever possible; Create a parkway feel, lots of trees, etc; Drop speed; Widen to allow easier turns across traffic and off highway; Add a bikeway along the side of road
- Northwest Boulevard
- Northwest Corridor
- Lakeland Avenue
- West Broadway Avenue
- Northwest Way
- Northwest Highway
Appendix C: Survey

Please answer the following questions. All information will be kept confidential and is for research purposes only.

**My Neighborhood:** Please check the box that best represents your opinion.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither disagree or agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My neighborhood is improving</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Crime is a serious problem in my neighborhood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. The quality of public schools in my neighborhood is excellent</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. My neighborhood is a good place to raise children</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. I am part of my neighborhood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Transit is available in my neighborhood</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. My neighborhood has excellent cultural amenities</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Highway 81:** Please check the box that best represents your opinion.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither disagree or agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. I often take alternative routes to avoid problems on Highway 81</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. I often find that traffic is a problem on Highway 81</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. Highway 81 is an attractive place to travel</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

11. How many minutes does your average trip on Highway 81 take? ________

12. How often do you travel on Highway 81?

   For travel to work____(days a week)
   For travel to school____(days a week)
   For travel to errands____(days a week)
   For other trips____(days a week)

13. Do you take the bus to work?  ☐ Yes  ☐ No

13a. In what zip code is your workplace located? ________

14. Do you own or rent your home?  ☐ Own  ☐ Rent
15. _______ How many automobiles are there in your household?

16. _______ How many adults and children reside in your home?

17. _______ How many children 18 or younger live in your home?

18. _______ How many years have you been lived in your neighborhood?

19. Which best describes the building you live in?
   - Mobile home
   - Single family house
   - A building with 5 to 9 apartments
   - A building with 10 to 19 apartments
   - Duplex
   - A building with 3 to 4 apartment
   - A building with more than 20 units
   - Other _______

20. What is your education level?
   - Eight years of school or fewer
   - Some high school
   - High school graduate
   - Some vocational, technical, or business school
   - Certificate or two-year degree
   - Some college
   - Bachelor’s degree
   - Professional or advanced degree

21. What is your marital status?
   - Never married
   - Living with partner
   - Married
   - Widowed
   - Divorced
   - Separated

22. What is your sex?
   - Male
   - Female

23. What is your current employment status?
   - Not employed
   - Looking for work
   - Employed part-time
   - Employed full-time
   - Retired

24. What is your age?
   - Under 25 years old
   - 25 to 40 years old
   - 41 to 65 years old
   - Over 65 years old

25. What race or ethnicity best describes yourself?
   - African American/Black
   - Asian/Pacific Islander
   - Hispanic/Latino(a)
   - Native American
   - White (Non-Hispanic)/Caucasian
   - Other race/ethnicity ______
26. What approximately is your total annual household income?

- Less than $24,999
- $25,000 to $44,999
- $45,000 to $74,999
- $75,000 to $99,999
- $100,000 to $124,999
- Over $125,000
Optional open-ended question: **How can Highway 81 become a better asset to your community?** (Use other side or additional sheets if desired)

[In addition, respondents were asked to note assets, liabilities and frequented areas on provided maps. Copies of those maps follow this page.]
> Outline the areas that you consider are assets.
> Please outline as many locations as you wish or leave blank if there are no areas that you consider are assets.
> Please label each location that you outline.
> Outline the areas that you consider are liabilities.
> Please outline as many locations as you wish or leave blank if there are no areas that you consider are liabilities.
> Please label each location that you outline.

Appendix C-6
Outline the areas that you typically frequent during a normal seven day period.

Please outline as many locations as you wish or leave blank if there are no areas that you frequented.

Please label each location that you outline.
Appendix D: Summary of Assets and Liabilities Named by the Focus Groups

Business Focus Group

**Assets:**
1. Strong neighborhoods = corridor strength, weak neighborhoods = corridor weakness
2. Most direct route to downtown Minneapolis – consistent travel time all year round
3. Direct access while in inner suburbs – good for businesses
4. Service roads provide safety
5. Timing of lights good for pedestrians (safe crossing)
6. Natural beauty/parks (Robbinsdale, Crystal)
7. Development potential north of Osseo
8. Mixed-use corridor
9. Transit potential within corridor
10. Complexity of space near Elim Lutheran Church

**Challenges:**
1. Decay on 81 = Bad neighborhoods (South of Hwy. 81, West Broadway Avenue)
2. Not enough “turn lanes”
3. Timed stoplights – intersection of 42nd and Hwy. 81
4. Devil’s Triangle
5. Not enough landscape in northern section (industrial landscaping, need for Master Plan)
6. No mass transit along Broadway Avenue

City Council Focus Group

**Assets:**
1. Traffic provides opportunities
2. Good housing stock
3. Downtown Osseo – good image (small town feel)
4. Area leading into Elm Creek has “pleasant feel”
5. Cub Development – good retail
6. Access – can get anywhere (but don’t sacrifice time (by adding more lights))
7. Visibility
8. Great “reliever” road – Alleviates freeway congestion
9. Bass Lake Road – South of this road, Hwy. 81 is a city street, north of this road it is a highway.
10. Ties communities together – cohesion and consensus
11. Rail corridor available

**Challenges:**
1. Center median – too wide (collects trash, housekeeping difficult)
2. Left hand turns: too many stoplights – north/south acts as two different roads
3. More grade separations
4. Safety Issues – Competing traffic issues
5. Hwy. 610 – could create problems
6. Weather problems create traffic in towns – 169 north is terrible with snow
7. Cities have competing interest with regard to traffic flow.
8. Creating transit routes that connect cities and central business districts – must have viable destinations

Planning Commission Focus Group

Assets:
1. Parkway potential – Median present
2. Lakes – Natural Amenities (Crystal Lake, Shingle Creek)
3. Direct Route in and out of downtown Minneapolis
4. Waterford Apartment Complex – Senior complex in Crystal
5. Railway – Setback available (although its ugly and noisy)
6. Landscaping in and around Brooklyn Boulevard
7. View going north to Rogers – not cluttered, undeveloped
8. Elm Creek Nature Reserve
9. North Memorial Hospital
10. Shingle Creek – wetland
11. Victory Memorial Drive

Challenges:
1. Tree Line Parkway wanted (currently not landscaped)
2. Synchronized lights to help cross traffic
3. Railway – noise / design standards
4. Need landscaping north of lakes (Robbinsdale and Crystal)
5. Robbinsdale area is not attractive
6. Stoplights are old (falling apart and could be upgraded)
7. Frontage roads create confusion
8. Need alternative transportation for seniors
9. Not pedestrian friendly
10. Speed limit is too high in Robbinsdale (should be lower)
11. Need entry / exit points in each City – identify where you are
12. Entry to 694 creates problems
13. No turn lanes
14. 89th Street entry
15. No plans for increased traffic from Rogers
16. Improve 610 design – entry

Maps Developed by the Focus Groups
Appendix E: Summary of Proceedings:
The Roundtable for Transportation Corridor Redevelopment
March 7, 2001

Introduction

On March 7, 2001, the State and Local Policy Program of the University of Minnesota's Humphrey Institute of Public Affairs (SLPP) hosted a roundtable discussion at the Carlson School of Management. The purpose of the roundtable discussion was to explore new models for transportation planning in corridor redevelopment. This event was organized as a roundtable, wherein SLPP invited experts in transportation and community development to gather with representatives from government agencies, area businesses, and other stakeholders from local corridors to listen and interact with one another while sharing important planning and policy information, which could shape the future of the metropolitan area. The conference also provided a platform to present case studies from around the world that addressed the opportunities of corridor development.

The agenda for the roundtable included morning and afternoon sessions. The morning session was responsible for discussing topics related to developing a framework for assessing corridor development opportunities by using examples of events and programs at the local level designed to positively influence corridor development. The morning session featured Professor Robert Cervero, an expert on transportation corridor development planning from the University of California, Berkeley, as the keynote speaker. Other speakers represented the Federal Transit Administration, the Minnesota Department of Transportation, the Humphrey Institute, Claremont Graduate University, and the Design Center for the American Urban Landscape. The afternoon session was responsible for discussing the merits of focusing on corridors in community development. The afternoon session included representatives from the Metropolitan Council, Hennepin County Highway 81, Hiawatha Avenue, North 35W Coalition, and Hennepin County. The roundtable ended with a wide-ranging discussion that included the entire audience, including the speakers from the morning session.

After the panelists had an opportunity to voice their views and experiences regarding the prescribed subject matter, the audience, which consisted of approximately 55 people, was encouraged to ask questions and list their concerns with the issues related to transportation corridors. Opening the conversation up to the audience produced new ideas and thoughts as to developing a framework for assessing corridor development opportunities. The audience members were enthusiastic about the concept of developing a framework for transportation corridors in the Twin Cities metro area.

Welcome and Convening: Olin Moore, Representative for Congressman Martin Sabo:

Mr. Moore set the context for the day by providing an overview of the importance of transportation corridor development in the metro area. Moore stated that transportation corridors, as a stimulus for community development, are important issues for Congressman Martin Sabo, and highlighted the Congressman's efforts to increase transportation corridor development activity at the community and the legislative levels. Moore closed by emphasizing that increased commitment at both levels strengthens financial and public support for overall corridor development in the metro area.
Keynote: “What Makes Corridors Unique?” Professor Bob Cervero, University of California, Berkeley

Professor Bob Cervero, an expert on transportation planning from the University of California, Berkeley, described the uniqueness of corridors in his presentation. Transportation corridors are multi-jurisdictional, have infrastructure driving growth, and various political and financial opportunities. When planning for development along transportation corridors, planners should recognize opportunities that favor corridor growth, such as maintaining a balance between the ability to quickly travel a corridor with the ability to easily access the corridor and developing a strong vision of the corridor and shape economic development in the region. Public perception should also be considered from the start, in order to shift the planning process from reactive to proactive, thus creating long-term benefits for the community. Proactive policies can catalyze financial investments up-front, which strengthens development planning.

Many examples from around the world demonstrated various avenues of transit, from Curitiba, Brazil to Stockholm, Sweden. Both Bus Rapid Transit and Light Rail Transit have benefits to the community and, rather than choosing the “corridor of least resistance,” a transit system must be carefully developed to fit the needs of the community. Cervero stated that evaluators of economic development should consider opportunities to market the project, coordinate policies, and work with various sectors on the project, especially the private sector.

Federal and State Views of Transportation Corridors

Elaine Dezenski, Manager for the Joint Partnership Program in the Office of Research, Demonstration and Innovation at the Federal Transit Administration, spoke on the role of the federal government, which is to provide incentives, align departmental actions in support of local smart growth initiatives, supply information on tools, and offer resources to empower citizens and communities to lead development projects. Corridor development is enhanced with livability and transit-oriented development. This includes smart growth, combined finances, and more choices for the community. These programs work with current institutions to make a project work, which allows flexibility at the local level. There are also options to use various models for transportation, even at the incremental development process. To gain ridership, the community must actively market the availability, the ease of usage, and the new technology opportunities of the transportation system. Ms. Dezenski discussed Bus Rapid Transit as one viable transit alternative gaining interest in the United States.

Richard Bauch, an Inter-Regional Corridor Manager with the Minnesota Department of Transportation (Mn/DOT) spoke on the development and anticipated impacts of the Mn/DOT Inter-Regional Corridor initiative (IRC). Since connecting urban centers are a large priority, Mn/DOT has identified a network of Interregional Corridors to focus on the effects of speed limits, congestion, and traffic lights within corridors. Mn/DOT’s current investments are targeted at improving corridors with below and near-below rankings to improve overall state transportation. Furthermore, Mn/DOT is promoting the IRC system as an opportunity for alternative transportation and land use stewardship throughout state, including the metro region. Bauch stated the key planning concepts for transportation corridor development includes the partnership of various organizations to formulate a corridor vision with a sound action plan and ongoing corridor management. As part of the governor’s “Big Plan”, the Inter-Regional Corridor has been rolled into the governor’s smart growth initiative.
Developing a Framework for Assessing Corridor Development Opportunities

Ken Kriz, an Assistant Professor at the Humphrey Institute, spoke on designing a sound framework for corridor development. He stated that a framework should consider the challenges for corridor planning and development including citizen preferences, financing, potential impacts, design, and governance. Reviewing travel patterns, housing, commerce, and open space will also strengthen the framework by directing development to occur in patterns that are congruent with transportation system designs. The planners should also keep in mind successful corridors, like Curitiba and Stockholm, as discussed by Professor Cervero.

Tom Horan, Associate Professor at the Claremont Graduate School, offered an initial response, noting the differences between new corridor development and existing corridor redevelopment. He noted that the redevelopment of existing corridors is particularly immersed in political, economic, and social context of the project. Horan raised the following questions to the roundtable: “Can the corridor be thought of as a as a place?” and “How do you develop an integrated approach that respects both the mobility and community aspects of the corridor in mind?” These questions involve analyzing public sentiment and corridor development in terms of assets and liabilities.

Dan Marckel, a Research Fellow at the University of Minnesota’s Design Center for the American Urban Landscape, introduced the different approaches to in-fill versus re-fill opportunities in economic development. Marckel raised the issue to foster discussion of corridor development, using the 8 communities on the Hennepin County Highway 81 project as an example. Since Highway 81 passes through urban, 1st and 2nd ring suburbs, there are redeveloped, developing, and new development phases that need to be coordinated. As various sectors work on the corridor redevelopment project, the coalition needs to consider public needs and wants for the corridor.

Audience discussion: How do we maximize the role of corridors in the urban development and redevelopment process?

Various speakers and members of the roundtable advocated developing a framework by emphasizing design, additional research, informing the public with marketing campaigns, or getting the community involved. Gail Dorfman, a Hennepin County Commissioner, noted that St. Louis Park’s current plans to develop a downtown area have increased community involvement as well as created economic development opportunities. By planting flowers and trees along roads and lighting the streets at night, citizen interest in community centers and bike paths have been generated as well.

Connie Koziak, from the Met Council, proposed using a strategic planned vision for economic development. She noted that since economic development and transportation planning are two moving targets that are difficult to coordinate, planners could stabilize one target according to the vision and then develop the other target to complete the vision. Furthering the conversation, Tom Horan described this as a way to compare the opportunities of BRT versus LRT in transportation planning.

Other topics explored transit stop opportunities, dedicated right of way, and permanency in development. Tom Horan described the potential for proper development to increase pedestrian activity and secure investment dollars. Elaine Dezenski spoke on the opportunities to create incremental improvements within existing transportation infrastructure. Karen Chapple raised the work of local grassroots campaigns like the 35W corridor as an example of a project that brought
businesses and governmental agencies together for the community. Natalio Diaz concluded the discussion by emphasizing the importance of the community foreseeing future problems of transportation and demanding alternative transportation modes.

**Plans to Increase Transit Corridors: Natalio Diaz, Metropolitan Council**

Natalio Diaz, Transportation Director at the Metropolitan Council, described the three most important parts of corridor development:

1. An evolving vision of growth,
2. A theory of corridor development, and
3. Transportation design.

He also described three goals of the Metropolitan Council for transportation development in the region:

1) Double capacity of bus system,
2) Develop network of transit ways, and
3) Provide incentives for integration for development purposes.

Long-term success of transportation is represented by heavily traveled corridors, opportunities for development, and enthusiastic political support. The practical application of creating a framework needs a number of things including partnerships, resources, and flexible solutions that create a good interchange of suburban and urban policies. Mainly, multi-modal transportation needs to have public and financial support, especially in the legislative bodies.

**Transportation Corridor Development in the Twin Cities:**

Representatives from three developing transportation corridors in the Twin Cities discussed the challenges that they have faced in the process, and how they are addressing them.

*Hennepin County Highway 81:* Larry Blackstad, the Director of Hennepin County’s Community Works Division, described the need to create a framework that respects the challenges in the implementation of the project. There are many complicated issues that have shared responsibilities and a strong structure is needed to provide for coordinated action. Under Commissioner Opat, there is a partnership-led initiative to bring private and public opinion together under a common vision. Blackstad stated that there is a need for a smart growth development framework fueled by the enthusiasm from the local communities.

*Hiawatha Avenue:* Hennepin County Commissioner Peter McLaughlin described the many obstacles to various development projects along this corridor, including lack of investments, dead-spaces, micro details, and political opposition. The Hiawatha corridor has been in various planning and construction stages for nearly 40 years, and a structure is needed to speed up the development process. McLaughlin stated that such a process would require up-front financing and the support of the public. Investments need to target infrastructure, and civic leaders need to work with the community to make a vision, raise finances, and deal with opposition.

*North Metro I-35W:* Bob Benke described the efforts of the North Metro I-35W Corridor Coalition, a seven-city joint powers organization. The Coalition was formed to provide the framework for coordinating economic development, housing and transportation infrastructure investments. Initial priorities were the development of an extensive common database and
assessments of growth related issues. The Coalition is currently conducting a "Build Out" Study that will form the base for future investment priorities. Lessons learned from the coalition are:

- The need for dedicated people,
- The need for leaders with a vision, and
- The need for community participation.

The Vision Statement for the North Metro I-35 Corridor Coalition is “To jointly and cooperatively plan for and maximize the opportunities for regional community development, quality growth, and diversification through a system of collaboration.” The desires of the coalition are weighed with the abilities of the coalition to build a living community.

**Audience Discussion: Merits of Focusing on Corridors?**

Serving as moderator for this session, Tom Horan invited discussion on aspects of the model framework. Beginning with financing, he referred back to the heavy allocations of funds to highways, rather than a balanced approach between highways and mass transit. Sandra Vargas noted that cities do not have the resources and need more flexible dollars; Mark Garner offered the possibly of a grant-coordinated project. Another member of the audience mentioned that given the need for constant highway upgrades, transportation dollars cannot be diverted away from current budgets. A larger allocation of funds from the state to transit needs to occur instead. Peter McLaughlin reiterated his point that an adequate funding mechanism was key to the success of corridors, and that keeping it as a sub-regional initiative meant that major capital funds would generally not be available.

Horan then introduced the topic of public opinion. Mark Garner noted that public infrastructure needs to support redevelopment of land and recycled areas. Robert Cervero encouraged creative fundraising with the private sector. Economic clusters would support with transit alternatives to ensure efficient corridor use in the future, noted by Lee Munnich.

In regards to public opinion, Commissioner McLaughlin noted the issue of the public’s current negative perceptions of mass transit. Bob Benke noted the need for the government to correlate transportation policies with the wants of the people. Karen Chapple noted that despite initial reluctance to support transit corridors, proactive development policies can contribute to the growth of livable communities. Dan Marckel remarked on the impact of positive marketing campaigns and extensive community involvement in transportation planning. Another member of the audience noted the need to bridge the gap between views of rural legislators and urban legislators in the transportation legislative bodies, in order to strengthen statewide transportation policy.

Tom Horan discussed the topic of successful consensus building at the corridor level includes private and public interests. The consensus needs to recognize the larger regional goals and work with other corridor development projects. Connie Kozlak described how a plan carefully developed at the regional level could alleviate in fighting between corridors and allow development projects to occur, even if they are developed, funded and implemented one project at a time.

**Reaction:**
A framework for transportation corridor development needs to be designed and include proper means of implementation. This framework needs to have committed support across various parties represented at the roundtable to heighten financial and public support of the program. There are many examples of successful transportation corridors around the world, from which we can adapt the structures, technology, and development to benefit the local transit system. Benefits from the system may include invigorated urban centers, attractive housing, and well-planned communities. Opportunities for long-term investments in land purchases can be reinvested into the transit system.

Themes that emerged from the roundtable, applicable as lessons for current and future corridor planning efforts are:

- For corridors that affect multiple jurisdictions, it is important to get leaders from each place into the room to discuss issues and opportunities of development.
- Open communication between bureaucrats/planners and citizens is critical to project development and eventual success. There is often a difference between what citizens are saying and what government thinks citizens are saying. Planners and politicians should carefully listen to what those affected by development really want from and in their communities. There may be difficulties in communication between planners and citizens because citizens may not understand what different types of development might look like when built. For this reason, showing a picture or otherwise presenting concepts might be more effective for some people, convincing them that density can be attractive, than merely using words to describe concepts such as transit oriented design.
- Funding for transit is difficult to piece together. For this reason, cooperation between communities and representatives from different (city, county, state, federal) governments is essential to get projects moving forward.

In order to create such successes, local corridors need to compromise to focus energy on certain corridors in certain stages. Success also depends upon more developed funding and growth models.

There were some questions raised:

a. How to integrate the transportation corridor development plans?

b. How to best serve the present and future transit customers in the metro area?

c. How to finance these plans at the state and federal levels?

d. How to develop a political constituency to support integrated corridor development?

These and other questions are very important in developing a framework for transportation corridor development. With these questions in mind, it would be useful to reconvene this group to further discuss building a framework for transportation corridor development in the near future.
Appendix F: Economic Simulation Model of the Highway 81 Corridor

In order to analyze the economic impacts of various transit options in the corridor, it was necessary to develop an economic model of transit effects in the corridor and analyze the results. There are several different ways to do this. We chose to develop an economic simulation model. Simulation models are the best choice for economic modeling in the presence of significant uncertainty. They allow an analyst to view the potential range of economic outcomes for a given policy change. Because most of the effects noted above were likely to come from changes in ridership (utilization rates of the various alternatives), it was first necessary to model ridership. After gathering data specific to the transportation analysis zone (TAZ) level, it was determined that a better model would be developed using city population and the assignment of trips to the corridor. The corridor seems to be a potential focal point for travel from the Northwest quadrant of the Minneapolis-St. Paul metropolitan area. Therefore, it is more appropriate to model potential travel through the corridor after transit improvements are made. Population and population growth rate data was gathered from the U.S. Census Bureau website. Transit ridership was then calculated according to the following formula:

\[ \text{Ridership} = \text{City Population} \times \text{Corridor Share of City Travel} \times \text{Transit Share} \]

where Transit Share is the share of corridor trips captured by the specified transit option. Population was projected to 2010 using recent data on growth rates from 1990-2000. Ridership was also divided into peak and non-peak figures. Benefits were then calculated according to the following functions:

- \( \text{Travel Time Savings} = f(\text{Peak Ridership}, \text{Passenger Wait Times, SOV Travel Time Reduction}) \)
- \( \text{Reduction in Crashes} = g(\text{Total Ridership, Crashes per SOV}) \)
- \( \text{Transportation Cost Savings} = h(\text{Travel Time Savings, Average Travel Costs}) \)
- \( \text{Employment and Income Growth} = j(\text{Number of Stops, Peak Ridership, Propensity of Peak Riders to Stop, Non-Peak Ridership, Propensity of Non-Peak Riders to Stop}) \)
- \( \text{Land Development} = k(\text{Peak Ridership, Non-Peak Ridership, Employment and Income Growth}) \)

Other impacts were then inferred from these results. There are obviously many variables that could potentially impact the results from this model. Not all are well documented in the literature. Therefore, ranges of potential values were entered through a process known as Monte Carlo simulation. Monte Carlo simulations (first developed in the 1940s during the Manhattan Project) involve entering a large number of random inputs into a model while recording the range of outputs from the model. Monte Carlo methods have become significant in fields ranging from quantum physics to finance. They allow an analyst to replicate potential future values of a model. The outputs from Monte Carlo simulations are usually stated in the form of probability distributions. These distributions improve on point estimates because they provide a fuller picture of the potential risks and rewards of decisions.
For an example of Monte Carlo simulation, instead of entering a point estimate of the share of peak period trips that would be captured by a busway, we enter a probability distribution. We anticipate that this variable would be normally distributed with a mean around 6 percent. Using TAZ data, the transit penetration in this area is currently around 5 percent and would anticipate some improvement with the advent of a transit system improvement. We don't think that the share of peak period trips would be more than double this estimate, nor would it be negative. So we set the distribution as a normal distribution between the values of 0 and 12 percent with a mean of 6 percent and a standard deviation of 1 percent. After entering all of the distributional assumptions, the Monte Carlo simulation is allowed to run, with a computer program picking a random number from this distribution and feeding it into the model. Results were then collected and analyzed. An example of the type of output generated from this model is shown in Figure A-1 on the next page. This is the busway ridership projection for 2010. It is obvious that there is a great range of uncertainty regarding ridership. The maximum value is over 14,000 riders per day, the minimum only 1,700. However, the vast majority of the outcomes cluster around the mean of 7,162.

**Figure A-1. Simulation Results for Busway Ridership in 2010.**

This recognition and formal modeling of this uncertainty is necessary when calculating the economic impact results from a planned major capital investment. The results were analyzed with this uncertainty captured and the results are recapped qualitatively in Exhibit 3 of Section 4 in the main report.
Appendix G: Capstone Syllabus

PA 8583
STATE AND LOCAL ECONOMIC DEVELOPMENT WORKSHOP
An Economic and Community Development Capstone Workshop

Spring Semester 2000 • 3 Credits

Thursdays, 5:30 - 8:00 p.m.
Room 25 Humphrey Center

Instructor: Lee Munnich
Office: 157 Humphrey Center
Phone: (612) 625-7357
E-mail: lmunnich@hhh.umn.edu
Office Hours: Tu 11-1 (or by appointment)

Course Description:

State and local actions can be decisive in shaping the way an area's economy adjusts to the competitive world economy. This course will present a comprehensive overview of state and local economic and community development and the processes involved in developing a broadly conceived economic and community development strategy. The course will also explore new institutional structures and processes required to deal with economic change, new political realities, and evolving knowledge.

A team of students will prepare an economic and community development strategy for a state, region, local government or neighborhood. An economic and community development strategy will consist of three parts: 1) a diagnosis of opportunities and risks, 2) a vision for the future, and 3) an action plan in accord with that vision.

The topic for the Spring 2000 course is "What is the economic and community development potential for light rail transit (LRT) in south Minneapolis?" The client group is a coalition of south Minneapolis neighborhoods --- Cedar Riverside, Phillips, Seward, Longfellow, Corcoran, Standish-Ericsson, Nokomis.

This workshop is designed to provide a capstone learning opportunity for students on the theory and practice of economic and community development as well as a structured process for completing the Plan B requirement. It is fully expected that Humphrey graduate students taking the course as a capstone workshop will have met the Plan B requirement by the end of the course.

Requirements:

The class format will be a workshop with occasional lectures, guest speakers, and a strong emphasis on teamwork and class participation. Teams will be expected to prepare and present state, local or neighborhood development strategies in three parts, to evaluate the work of other teams, to give an oral presentation to a guest jury, and to assess their own performance as teams.

Teamwork (15%)
• Class participation and presentations
• Weekly team meetings outside of class
• Team contracts
• Team member evaluations (10%)

Strategy report (70%)
• Diagnosis draft (10%) – due February 24
• Vision draft (10%) – due March 9
• Action plan draft (10%) – due March 23
• Final draft (10%) – due April 13
• Final report (15%) – due April 27
• Team presentation (15%) – May 4

Individual assessment (15%) – due May 12

Second year Humphrey students who are taking the workshop as a capstone/Plan B requirement will keep an journal during the workshop and prepare an individual assessment paper (5-10 pages) on what they have learned during the course, implications for public policy or planning, and recommendations for future capstone workshops. This paper will be submitted to the Plan B committee along with the final report prepared by the team. Students who are not taking the course as a capstone requirement are also encouraged to keep a journal and must submit a 2-3 page individual assessment at the end of the course.

2000 Capstone Workshop Schedule

The capstone workshop schedule is as follows. Topics will be presented through lectures by the instructor and guest instructors, panel discussions with policy leaders and experts, phone conferences with national experts, and class discussions. Readings will be provided for each topic. Key due dates are show in boldface.

JAN 20 Overview of workshop. Discussion of team project. Overview of Hiawatha corridor LRT project. Initial team meeting.

JAN 27* Neighborhood perspectives on the relationship of LRT to economic and community development.

FEB 3 Policy leadership panel on relationship of LRT to economic and community development.

FEB 10 Light rail transit benefit-cost analysis. Neighborhood economic development

FEB 17 Understanding the linkage of economic development, community development, and transportation. National phone panel.

FEB 24 Draft diagnosis due. LRT and urban design.

MAR 2* Neighborhood clients evaluation of diagnosis. Neighborhood visioning process

MAR 9 Draft vision due. Benchmarking LRT plans in South Minneapolis with other cities.

MAR 16 Neighborhood clients evaluation of vision. Is state and local economic development policy a zero-sum game? (Bartik)

MAR 23 Draft action plan due. Complexity, chaos and positive feedback.

APR 6* Neighborhood clients evaluation of action plan. Industry clusters (Porter).

APR 13 Final draft report due

APR 20* Neighborhood clients evaluation of final report

APR 27 Final report due

MAY 4* Oral presentations to guest jury.
Individual assessments due

* Workshop sessions in which project clients are asked to participate.

Readings:

Students are encouraged to spend most of their time reading documents and web-based materials related to the topic of LRT and economic/communit development, the Hiawatha Corridor LRT project, and the neighborhoods involved in the project. Some of these materials will be provided at the beginning of the workshop. Students are responsible for identifying other documents and preparing a complete bibliography of these readings for the report.

Readings related to economic development from past workshops, which may be used during the course are as follows:


Copies of the Emerging Principles and Innovations in Economic Development reports, the articles listed, and additional articles and selected readings will be provided at no cost to students during the course. Students should purchase the CED report and the Bartik book.