



# Alternatives Analysis Report

DRAFT

Prepared for the Gateway Corridor Commission

By **CH2MHILL**<sup>®</sup>

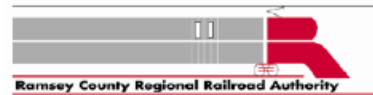
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## **Supporting Documentation (available under separate cover)**

1. Gateway Corridor Coordination Plan, February 2011
2. Public Involvement Plan, February 2011
3. Federal Transit Administration Initiation Package, February 2012
4. Detailed Definition of Alternatives Report, June 2012
5. Final Detailed Definition of Alternatives Report, August 2012
6. Capital Cost Estimating Methodology & Results Report, August 2012
7. Environmental and Community Impact Assessment Methodology & Results Report, August 2012
8. Evaluation Criteria Technical Memorandum, May 2011
9. Evaluation of Alternatives with Analysis Results Methodology Report, August 2012
10. Land Use Technical Methodology & Results Report, August 2012
11. Operating and Maintenance Cost Estimating Methodology and Results Report, August 2012
12. Traffic Analysis Methodology & Results Report, August 2012
13. Travel Demand Forecasting Methodology & Results Report, August 2012

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**Appendixes (available under separate cover)**

- A Results of the Initial Universe of Alternatives Evaluation
- B Detailed Plan and Critical Profile Drawings
- C Detailed Plan Drawings

## Executive Summary

### Introduction and Project Background

The 90-mile Gateway Corridor is centered on I-94 between Minneapolis, Minnesota and Eau Claire, Wisconsin, passing through Hennepin, Ramsey, and Washington Counties in Minnesota, and St. Croix, Dunn, Eau Claire, and Chippewa Counties in Wisconsin. The Gateway Corridor is conceptually illustrated Figure ES-1.

FIGURE ES-1  
Gateway Corridor, Minnesota-Wisconsin



The Washington County Regional Railroad Authority (WCRRRA), on behalf of the Gateway Corridor Commission and in coordination with the Federal Transit Administration (FTA), initiated an Alternatives Analysis (AA) for the Gateway Corridor in August 2010. The purpose of the AA is to fulfill the Gateway Corridor vision for a high quality transit option for this corridor by identifying and evaluating the benefits, costs, impacts, and feasibility of alternative approaches to maximize transit service in the corridor. The decision to conduct an AA reflects the recognition that the local government deliberation process, the public involvement process, and the state/federal agency process must be linked together and informed by each other at key milestone points through regular reporting among these groups.

The AA identified a broad range of transit technologies and alternative alignment locations to address the corridor's transportation needs. These alternatives were evaluated, and promising alternatives were defined in sufficient detail to permit comparisons under agreed-upon criteria. Alternatives which met key performance measures were then further refined to optimize ridership and reduce cost.

With completion of the AA, the identified build alignment and two transit modes [light rail transit (LRT) and bus rapid transit (BRT)] will move into environmental documentation, under a process guided by requirements of the National Environmental Policy Act (NEPA). The NEPA phase of environmental documentation will include a final definition of the remaining alternative(s), selection of a locally preferred alternative, and a detailed environmental screening that will formally review social, economic and environmental issues.

### Report Purpose

This Alternatives Analysis Final Report summarizes the Gateway Corridor AA process and findings, and identifies the two promising alternatives to advance further into the NEPA environmental review phase of project development. A single, locally preferred alternative (LPA) will be identified during the subsequent DEIS.



Consistent with the FTA New Starts process, development of the AA involved describing the transportation problems faced by the Gateway Corridor, and incorporating activities and outreach techniques to include stakeholder and public engagement. Technical work to develop ridership forecasts and cost estimates was based on FTA-approved procedures.

The Gateway Corridor AA was conducted using FTA's guidance developed under SAFETEA-LU, the federal transportation law in effect until October 2012. After October 2012, the new federal transportation law, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), came into effect. Because new guidance under MAP-21 has not yet been released, the FTA has advised the Gateway AA team to continue following the policies, procedures, and reporting requirements of SAFETEA-LU.

## Public and Agency Involvement

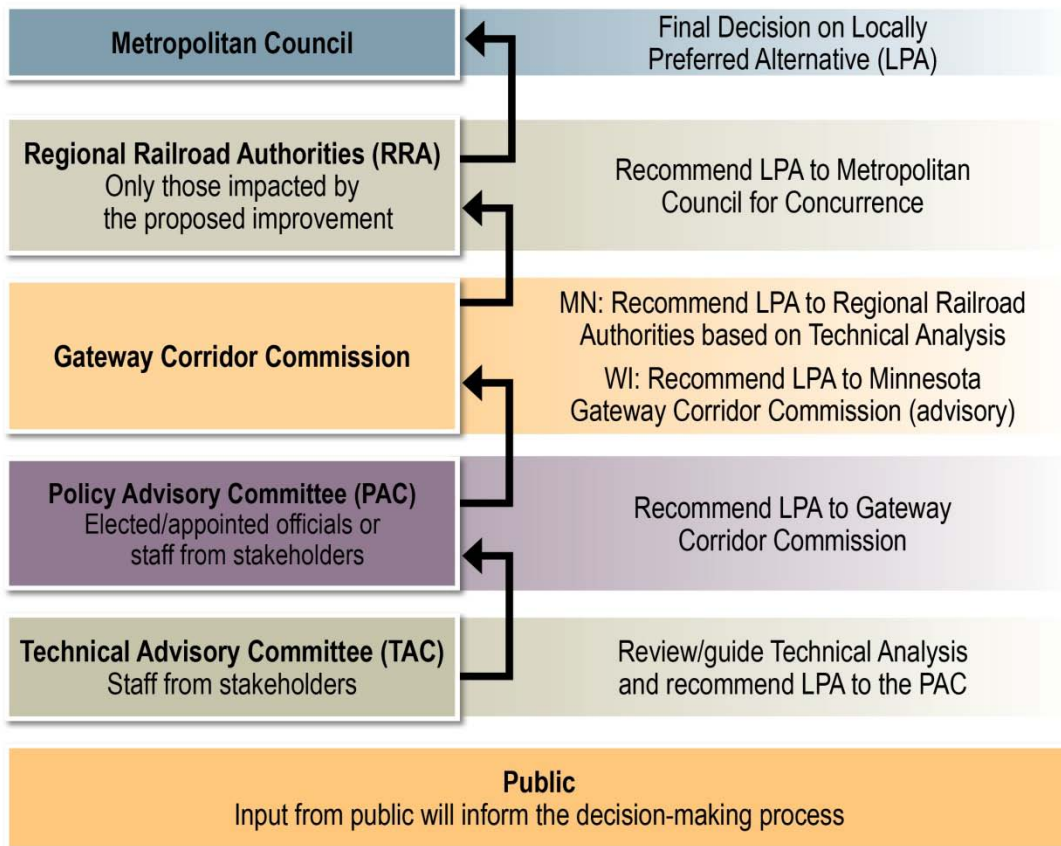
The Gateway Corridor Commission was created in 2009 to advocate, study and plan for improved transportation options along I-94. The Commission is comprised of local elected officials and community leaders, who are working to bring new transit options to residents, businesses and travelers in the corridor. The public outreach efforts for the Gateway Corridor AA were guided by the Commission's goal to conduct advocacy and outreach activities which promote coordinated transportation planning and investments in the I-94 corridor.

Early and continuous public and agency involvement in the Gateway Corridor AA was an important part of the alternatives development and evaluation. The Gateway Corridor Commission formed two advisory committees to advise the Commission on the Study. Staff from each community served on the Technical Advisory Committee (TAC); elected officials and agency managers served on the Policy Advisory Committee. Seven counties, twelve Minnesota communities and twelve Wisconsin communities participated on the Technical and/or Policy Advisory Committees. Outreach included conversations with city/county administrators, community development and planning departments, public works departments, other departments directly affected by the corridor, and elected/appointed officials. Coordination is ongoing with staff from the Metropolitan Council, Metro Transit, the Minnesota and Wisconsin Departments of Transportation, the Federal Highway Administration (FHWA), and the FTA.

Three rounds of public meetings were held at key decision points, with one meeting in each segment of the corridor during each round, for a total of twelve public meetings. In addition, the project team held over 70 meetings with individual communities, business and public interest groups. Seven project newsletters were developed. Electronic communication and outreach techniques included a Facebook page, informational e-mails, fact sheets, press releases, and project website updates.

The process reflected in Figure ES-2 summarizes the decision-making process applicable to the New Starts program which was in place when the Gateway Corridor AA was initiated. This process was followed by the Advisory Committees to the Gateway Corridor Commission.

FIGURE ES-2  
Gateway Corridor Decision Making Process



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## Problem Statement, Goals and Objectives

A problem statement for the Gateway Corridor was developed in response to the corridor's travel characteristics and issues summarized in the *FTA Initiation Package (February 2011)*. This problem statement is important because it ultimately becomes the basis for the future Purpose and Need chapter of a Draft Environmental Impact Statement (DEIS), the next step in the FTA's New Starts transit project development process. Based on the corridor's travel characteristics and issues summarized in this document, the Gateway Corridor's draft problem statement is summarized as follows:

- Peak period capacity is inadequate in many segments of the corridor to handle the growing transportation demands of the Gateway Corridor communities, with no programmed projects for increasing highway capacity on I-94.
- A more sustainable, multimodal transportation network is needed to provide viable options for users and to achieve the diverse community land use visions, support economic development, and respond to changing corridor population characteristics.
- The increasing demand for effective transit options requires greater coordination to provide an integrated transit plan for the entire corridor.



This problem statement reflects that the corridor's transportation network as currently planned and programmed in the Twin Cities Transportation Policy Plan will be inadequate to handle future conditions.

The Gateway Corridor TAC and PAC translated the corridor's problem statement into draft goals and objectives, which reflect the intent of state, regional, and community plans for the Gateway Corridor. These goals and objectives were also reviewed at the first series of public meetings, held in February and March of 2011.

Project goals were identified to address corridor needs, and prioritized into two categories. Tier 1 goals - Improve Mobility, and Provide a Cost-effective, Economically viable Transit Option - are considered essential for a project to be viable. Tier 2 goals include the other four to be achieved, assuming a project exists from application of the Tier 1 goals.

- **Tier 1 Goals**
  - Goal 1 Improve Mobility
  - Goal 2 Provide a Cost-Effective, Economically Viable Transit Option
- **Tier 2 Goals**
  - Goal 3 Support Economic Development
  - Goal 4 Protect the Natural Environmental Features of the Corridor
  - Goal 5 Preserve and Protect Individual Community Quality of Life
  - Goal 6 Improve Safety

Objectives were identified under each goal, with measures to evaluate each objective. Evaluation criteria included both FTA-required measurements under SAFETEA-LU New Starts guidance, and criteria important to the corridor communities.

## **Alternatives Considered, Defined, and Evaluated**

The AA began with consideration of multiple transit technologies and multiple potential transit routes. Figure ES-3 illustrates potential routes considered within Minnesota. Figure ES-4 illustrates potential routes considered within Wisconsin.

FIGURE ES-3  
Gateway Corridor Universe of Alternatives, Study Segments 1, 2, and 3

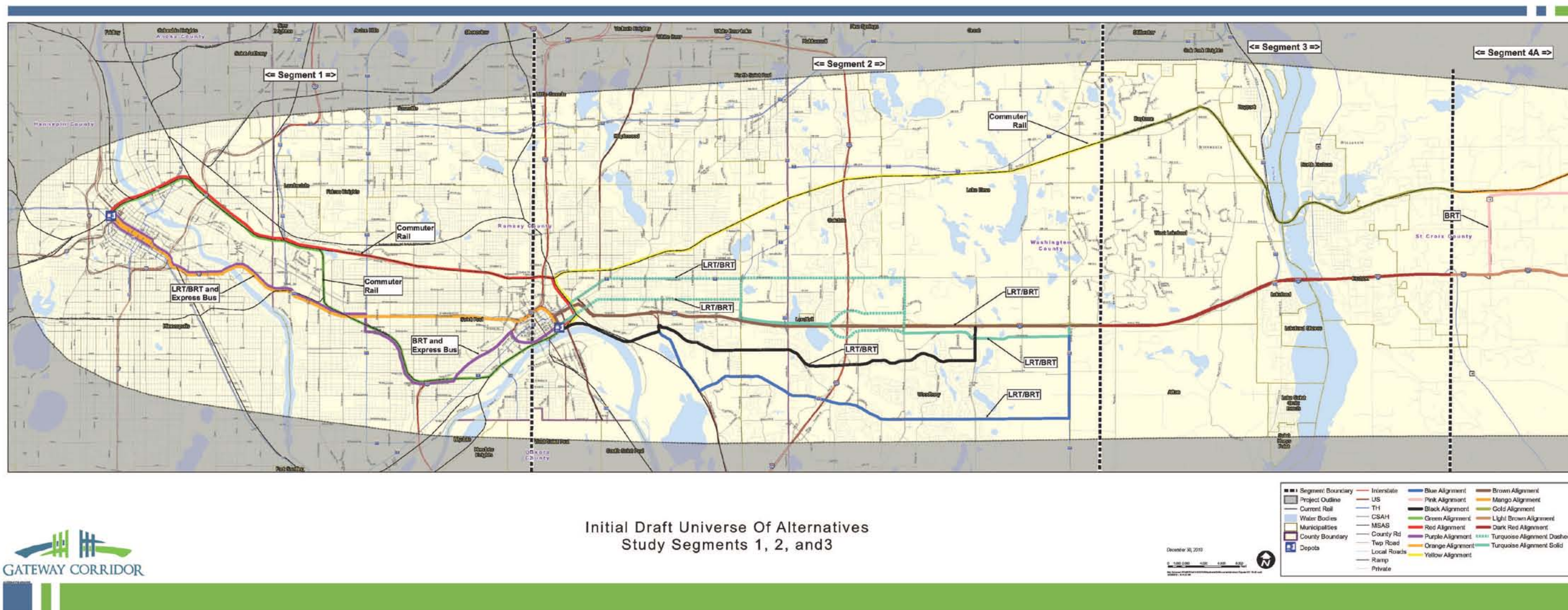
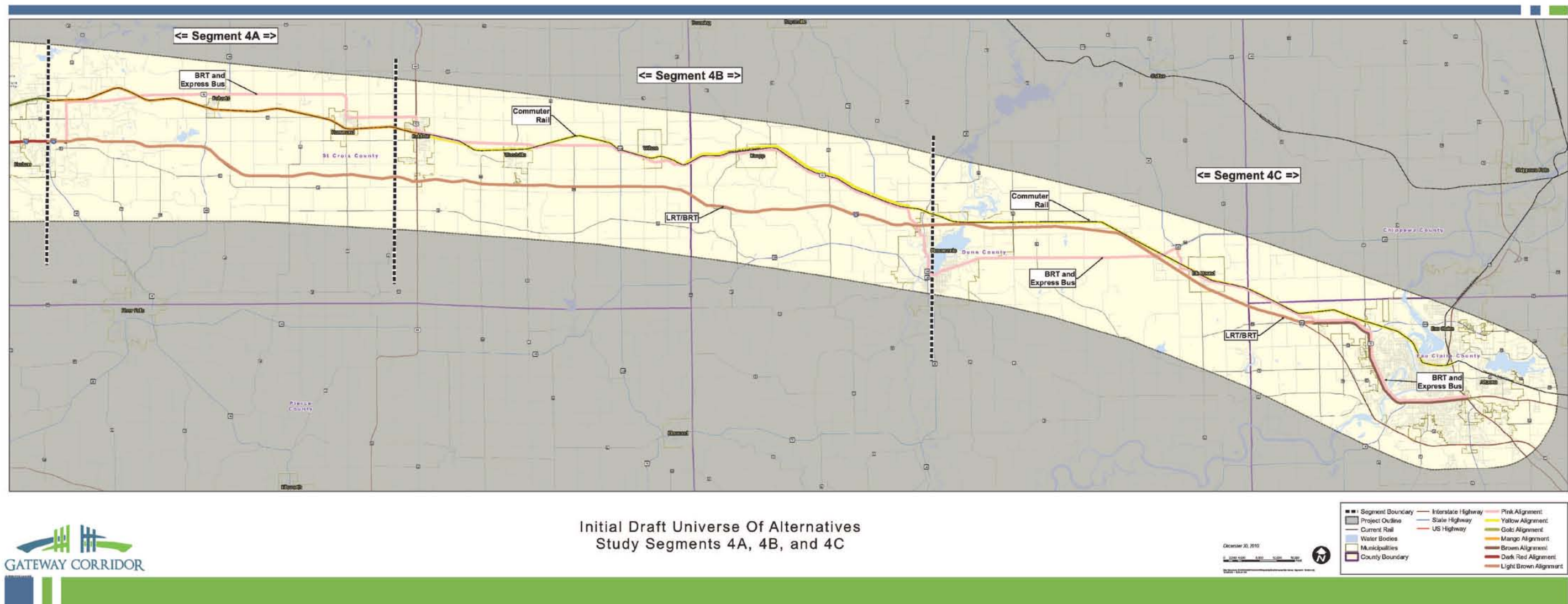


FIGURE ES-4  
Gateway Corridor Universe of Alternatives, Study Segment 4





Four transit technologies were determined to be feasible options for the Gateway Corridor: express bus, bus rapid transit (BRT), light rail transit (LRT), and commuter rail service.

Over twenty route options were considered and screened. Evaluations and refinements led to the identification of eight alternative approaches that best met the transit needs of the corridor:

- Alternative 1: No Build – the 2030 transportation network with only those improvements already planned and programmed
- Alternative 2: Transportation System Management (TSM) – enhancements to facilities and bus service short of major infrastructure additions<sup>1</sup>
- Alternative 3: BRT adjacent to Hudson Road east of I-694, and in the median of I-94 west of I-694. It features BRT in an exclusive, two-way guideway. The guideway ends at Manning Avenue and BRT service would continue on I-94 to Hudson, Wisconsin. Alternative 3 provides a commuter-oriented service with 12 stations.
- Alternative 4: BRT on East 7<sup>th</sup> Street, White Bear Avenue in St. Paul, then adjacent to Hudson Road. It features BRT in an exclusive, two-way guideway and provides more localized access to communities in the urbanized areas of the corridor east of downtown St. Paul. Alternative 4 includes 16 stations.
- Alternative 5: LRT adjacent to Hudson Road east of I-694, and in the median of I-94 west of I-694. It provides a double-track, exclusive LRT guideway and follows an alignment identical to that of Alternative 3. This alternative, with 12 stations, provides a commuter-oriented service.
- Alternative 6: LRT on East 7<sup>th</sup> Street, White Bear Avenue in St. Paul, then adjacent to Hudson Road. Alternative 6 provides an exclusive, double-track LRT guideway with more localized access to corridor communities in the urbanized areas of the corridor east of downtown St. Paul. Alternative 6 includes 16 stations.
- Alternative 7: Commuter Rail on Union Pacific, Canadian Pacific, and Burlington Northern Santa Fe tracks. Alternative 7 provides commuter rail transit service within existing railroad corridors between the Twin Cities and Eau Claire. It includes 6 new stations, two in Minnesota and four in Wisconsin.
- Alternative 8: BRT Managed Lane within I-94. Alternative 8 would add managed lanes to I-94 between downtown St. Paul and the Highway 95 interchange just west of the St. Croix River. Management would include tolling with dynamic pricing through the most congested segments of the corridor to ensure that transit flows at posted speeds.

All eight alternatives were put through a detailed evaluation process. Performance under every project goal was rated, followed by overall performance against all goals. Where the performance of alternatives was similar in many categories, additional analysis was undertaken to identify specific differentiating factors. Based on the performance under each project goal, the eight alternatives were ranked.

Alternative 7, Commuter Rail, was dismissed by the Corridor Commission as not meeting sufficient project goals to remain a feasible transit alternative. Following its dismissal as a Gateway transit alternative, Alternative 7 was recommended to the Minnesota Department of Transportation for continued consideration as an inter-city rail corridor in the Minnesota Comprehensive Freight and Passenger Rail Plan.

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<sup>1</sup> The FTA under SAFETEA-LU requires both the No Build and the TSM Alternatives be carried forward through the AA process and into the appropriate NEPA process.



After comments from technical staff, elected officials, and community and business members, it was determined that the seven remaining alternatives needed further evaluation to further identify the most promising for the corridor.

Sections 4, 5 and 6 of this document summarize the technical process and results for each of these steps in the AA process.

## Alternative Refinements and Optimization

Following the detailed evaluation, remaining alternatives were put through an additional process to optimize their performance. Multiple refinements were identified, evaluated, and applied in further technical analyses to increase the benefits and reduce the impacts of alternatives. The optimization process resulted in increased ridership, decreased cost, and improved support for economic development among the alternatives considered.

The optimization process included additional analysis of Alternatives 4 (BRT) and 6 (LRT) within the City of St. Paul. These alternatives follow East 7<sup>th</sup> Street and White Bear Avenue on the City's east side. While Alternatives 4 and 6 did not rank as highly as others in the overall refined analysis, the East 7<sup>th</sup> Street segment between Metro State University and Arcade Street exhibited a strong transit market. Similar to the recommendations made earlier for Alternative 7, continued analysis was recommended in Metro Transit's arterial transitways study, Rush Line Alternatives Analysis, and the City of St. Paul streetcar study.

Table ES-3 presents the results of the refined evaluation process. The rankings represent a comparative assessment of each alternative against the others. Specific measures were developed under each goal, as described in the technical memorandum *Gateway Evaluation of Alternatives Methodology and Results, August 2012*. An alternative which strongly supports the goal was ranked as high ("+"), an alternative which supports the goal was given a medium ("0"), and an alternative which did not support the goal was given a low ("-") ranking.

As indicated in Table ES-1, Alternative 3 performs most favorably, while Alternatives 5 and 8 receive medium rankings.

With "High" or "Medium" rankings for all goals, optimized Alternative 3 – BRT adjacent to Hudson Road, again received the highest number of points and was ranked highest of the alternatives. With high or medium ranking for all goals, Alternative 3 has:

- Average daily ridership of 8,800-9,300, comparable to LRT ridership of 9,300
- Capital cost of approximately \$400M
- Annual operating & maintenance cost approximately \$9.6M
- High economic development potential, with 10 stations, all outside freeway median
- Competitive travel time to auto and express bus in 2030
- Eligible project for FTA New Starts funding

Alternative 3 had also received a "High" ranking during the previous evaluation of alternatives, before the optimization process.

Optimized Alternative 5, LRT along the same alignment, received equivalent rankings to Alternative 3 in all but one category – cost. Alternative 5 retained its previous ranking of "Medium". With a Medium ranking because of cost, but high or medium ranking for other goals, Alternative 5 has:

- Average daily ridership of 9,300
- Capital cost of approximately \$920M

TABLE ES-1  
Updated Optimized Evaluation Summary

Ranking Key + = High O = Medium - = Low	Goal 1: Improve Mobility			Goal 2: Cost Effective, Economically Viable		Goal 3: Supports Economic Development		Goal 4: Protect Natural Environment	Goal 5: Community Quality of Life	Goal 6: Safety	Overall Ranking
	Daily Transitway Ridership	Transit Travel Times	Traffic Impacts	2019 Capital Cost/CEI	Operating Costs	2010 Population & Employment	Station Area Development Potential	Impact Avoidance/Minimization & VMT Reduction	Property Acquisitions	Ungated, At-Grade Crossings	
	3 – BRT along Hudson Rd/I-94 <b>OPTIMIZED</b>	+	+	O	+	O	+	+	+	O	
5 – LRT along Hudson Rd/ I-94 <b>OPTIMIZED</b>	+	+	O	O	-	+	+	+	O	+	Medium
8 – BRT Managed Lane <b>OPTIMIZED</b>	+	+	+	O	O	O	-	+	+	+	Medium
2-TSM <b>OPTIMIZED</b>	-	+	O	+	+	O	-	+	+	+	Low
4 – BRT along E 7 <sup>th</sup> / White Bear Ave/ Hudson Rd	O	-	-	+	-	+	+	+	-	O	Low
6 – LRT along E 7 <sup>th</sup> / White Bear Ave/ Hudson Rd	+	-	-	-	-	+	+	+	-	O	Low

- Annual operating & maintenance cost approximately \$11.5M
- High economic development potential, with 10 stations, all outside freeway median
- Competitive travel time to auto and express bus in 2030
- Eligible project for FTA New Starts funding
- Opportunity for detailed comparison to BRT in an EIS

Although Alternative 8, BRT Managed Lane, maintained its “Medium” ranking and compared very favorably in terms of average daily ridership (8100), capital cost (approximately \$520M), and competitive travel time, it did not compare as favorably to Alternatives 3 and 5 for the following reasons:

- Fewer stations (7), and their location within the freeway median, offer less opportunity for economic development around stations for communities in the corridor compared to other alternatives.
- A managed lane does not qualify for FTA New Starts funding under MAP-21, and there is no equivalent program on the highway side to find a project of this scale.

## Alternatives to Advance into Draft Environmental Impact Statement

On October 11, 2012, the Gateway Corridor Commission approved the following:

### ***Advance Optimized Alternative 3—BRT adjacent to Hudson Road into the DEIS as the preferred option.***

- Received a medium or high ranking under all project goals, resulting in it becoming the highest ranked option overall. Alternative 3 is also eligible for FTA New Starts funding under MAP-21.

### ***Advance Optimized Alternative 5—LRT adjacent to Hudson Road for comparative purposes to BRT.***

- Received a low ranking for cost but medium or high ranking for all other project goals, resulting in its continued “Medium” ranking. Alternative 5 is also eligible for FTA New Starts funding under MAP-21. Because LRT Alternative 5 replicates BRT Alternative 3 in alignment, stations, and service plan, carrying it forward into the DEIS provides an opportunity to compare the two technologies in a detailed sided-by-side analysis.

It is understood that under current FTA guidance, Alternative 2—Transportation System Management (TSM), will also advance into environmental analysis. Should new guidance be issued under MAP-21 no longer requiring a TSM baseline, this alternative would not advance into the DEIS.

The Commission requested public comment on the Alternatives Analysis Final Report through early December 2012. At its December meeting, the Commission will approve the Final Report.

## Next Steps: Gateway Alternatives Advance into Project Development

The nation’s new transportation law, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) restructured the New Starts planning and project development process. The FTA process for capital investment grants (New Starts) organizes the next step of the process as Project Development, beginning with environmental analysis under the National Environmental Policy Act (NEPA). Under MAP-21, the locally preferred alternative is determined during the Draft Environmental Impact Statement (DEIS) phase of NEPA.



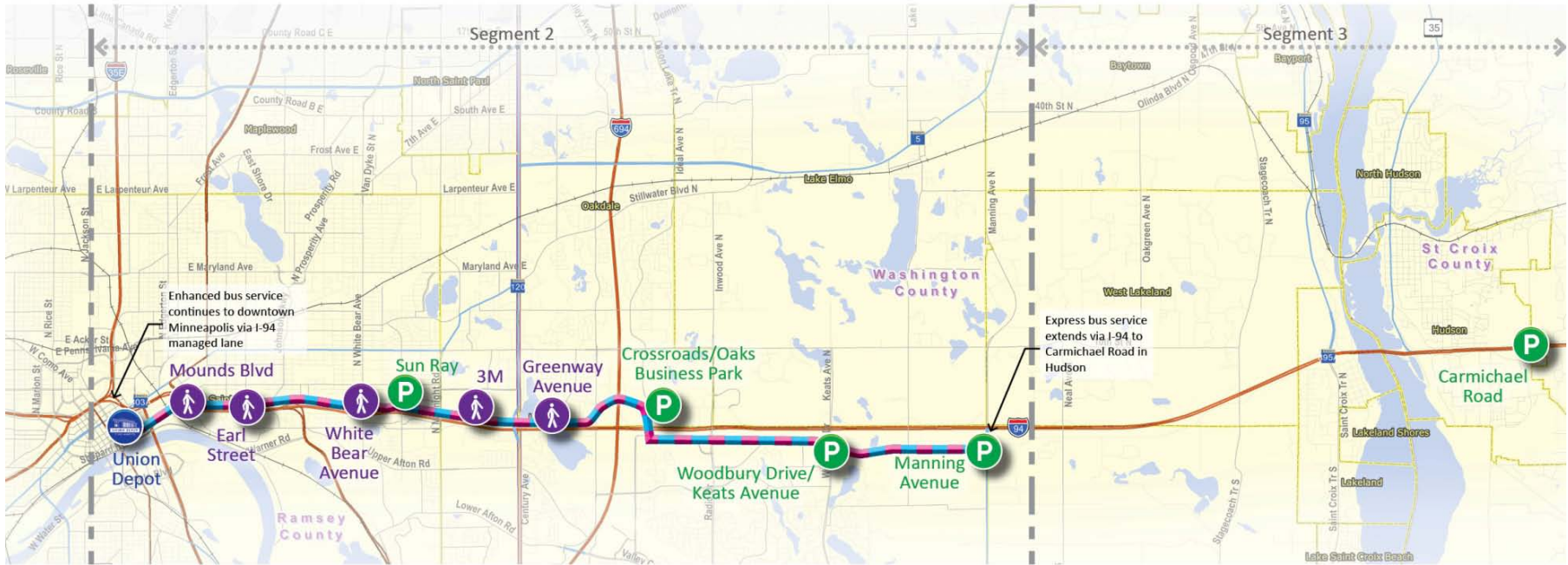
Following the December 2012 Gateway Corridor Commission meeting to consider public comment and approve the AA Final Report, the Commission will initiate the environmental analysis within the new Project Development phase. The Draft EIS process will follow the schedule in Table ES-2 below:

TABLE ES-2

Draft EIS Process Schedule

Project / Phase	Task	Timeline
Gateway Draft Environmental Impact Statement (DEIS) / Concurrent LPA Decision Process	NEPA Scoping of Most Promising Alternatives	Jan 2013—July 2013
	LPA Input and Decision (Commission, County and City Partners)	July—August 2013
	LPA Action through Transportation Policy Plan Amendment (Metropolitan Council)	August—Dec 2013
	Draft EIS Preparation / Distribution and Comment Period	August 2013—Dec 2014

FIGURE ES-5  
Optimized Alternatives 3 and 5: BRT Hudson Road and LRT-Hudson Road



**Legend:**

-  Union Depot Station
-  Park and Ride Transit Station
-  Walk up Transit Stop
-  Alternatives 3 and 5 BRT/LRT

 **Optimized Alternatives 3 and 5: BRT -Hudson Road and LRT-Hudson Road**  
October 4, 2012

**Gateway Corridor Alternatives Analysis**

GATEWAY CORRIDOR CH2MHILL Team



## 1. Introduction

This section describes the purpose of the Gateway Alternatives Analysis (AA), the study area, the Federal Transit Administration (FTA) New Starts process, and the contents of the report. The Gateway AA was conducted in accordance with FTA Guidance under the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU). While completion of the Gateway AA will occur during the transition to the new U.S. federal transportation bill, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), this AA Final Report follows FTA guidance in existence at the time of its development.

This Gateway Corridor AA Final Report incorporates the results of a series of technical reports that have been completed through the course of the study, including:

- Technical Memoranda:
  - Coordination Plan
  - Public Involvement Plan
  - Summary of Previous Studies
  - Problem Statement, Goals and Objectives
- Initiation Package Report (February 2012)
- Detailed Definition of Alternatives Report (June 2012)
- Final Definition of Alternatives Report (August 2012)
- Technical Methodology Reports, with Results (all completed in August 2012):
  - Environmental and Community Impact Assessment
  - Evaluation of Alternatives Process
  - Land Use Analysis
  - Traffic Analysis
  - Travel Demand Forecasting
  - Capital Costing
  - Operating and Maintenance Costing

These technical reports are referenced throughout this AA Report. All have been vetted through project stakeholders as well as the FTA.

### 1.1 Study Purpose

The AA is a first step in determining the best transit improvements for the Gateway Corridor. In August 2010, the Gateway Corridor Commission initiated a transit AA, looking at the I-94 corridor from downtown Minneapolis to Eau Claire, Wisconsin.

The purpose of this AA study is to identify and evaluate the benefits and costs of alternative transit approaches to maximize the multimodal performance of the corridor, and to recommend alternatives for further study in a subsequent environmental review process. This was achieved by initially identifying a broad range of transit alternatives (both mode and alignment) to address the identified transportation needs. These alternatives were evaluated and ultimately, a limited number of promising alternatives were identified for additional study in an environmental review, preliminary and final design and eventual implementation.

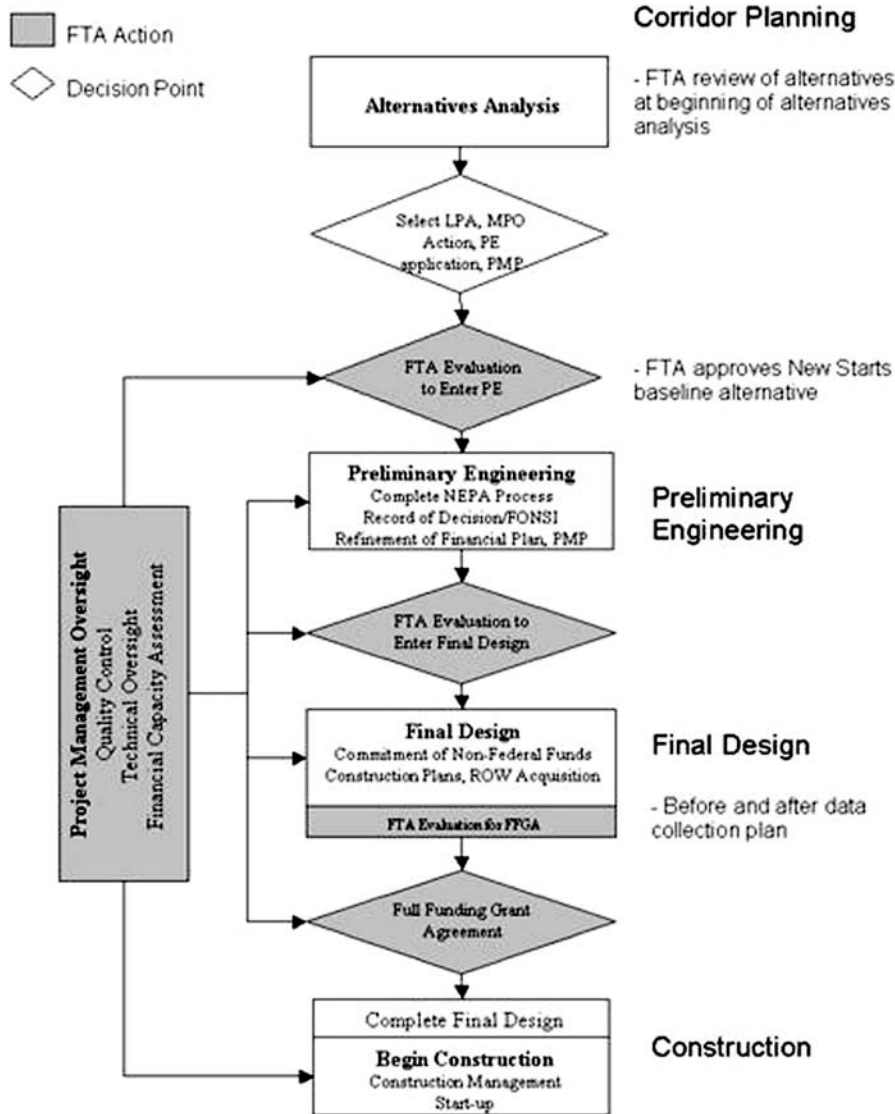
This AA addresses costs (both capital and operating), benefits, impacts and overall feasibility of the alternatives that are studied. Key elements of a New Starts AA include a well defined

problem statement; a range of transit alternatives including an FTA approved “baseline” alternative, ridership forecasts based on FTA-approved models and procedures, cost estimates, and stakeholder consultation and involvement.

## 1.2 FTA New Starts Process

Whether within the guidelines of FTA New Starts (under SAFETEA-LU), or completed by local project sponsors prior to entering the New Start process (under MAP-21), an AA is a first step required for a transit project to become eligible for funding through Section 5309 New Starts discretionary grant program. The FTA New Starts process under which the Gateway AA was conducted is shown in Figure 1-1.

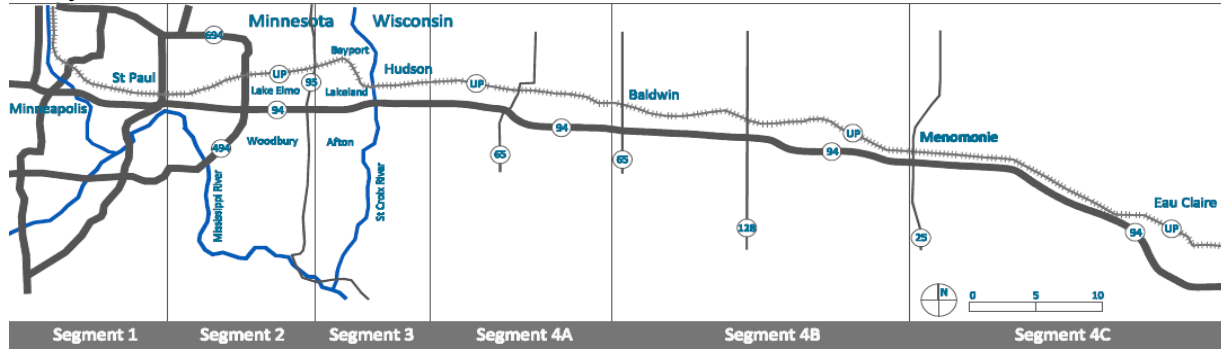
FIGURE 1-1  
FTA New Starts Process under SAFETEA-LU



### 1.3 Study Area

The 90-mile Gateway Corridor is centered on I-94 between Minneapolis, Minnesota and Eau Claire, Wisconsin, passing through Hennepin, Ramsey, and Washington Counties in Minnesota and, St. Croix, Dunn, Eau Claire, and Chippewa Counties in Wisconsin, as shown in Figure 1-2.

FIGURE 1-2  
Gateway Corridor, Minnesota-Wisconsin



The corridor study area for the AA extends approximately 3-5 miles either side of the freeway. Old Hudson Road brackets many segments of I-94 in the suburban Minnesota portion of the corridor; US TH 12 parallels I-94 on the north in Wisconsin. The Union Pacific Railroad roughly parallels I-94 on the north throughout the corridor in both states.

#### 1.3.1 Land Use

I-94 is the primary travel corridor between the Twin Cities and Eau Claire, and south and east to Madison, Milwaukee and Chicago. The corridor is a major thoroughfare linking Minnesota and western Wisconsin into the Chicago mega-region. It is a major economic development and commerce corridor of national significance and an important regional corridor for commuter travel. Some of the region's largest employers, such as 3M, Anderson Windows, and those in the two major downtowns of Minneapolis and St. Paul, are located within and rely on this corridor (see Figure 1-3).

FIGURE 1-3  
Gateway Corridor, Including Regional Employers



The Gateway Corridor incorporates many types of areas, ranging from fully developed urban core cities, through developed and developing suburbs, to rural areas and small communities. Each type of area typically has a different transit market. To facilitate the identification and



analysis of the differing transit markets within the corridor, the study corridor is divided into segments (see Figure 1-2). The segments are roughly identified as:

- Segment 1—Downtown Minneapolis to Downtown St. Paul (urbanized with heavy employment-dominated downtown core districts)
- Segment 2—Downtown St. Paul to Woodbury (urbanized)
- Segment 3—Woodbury to Hudson (transitional suburban/rural development)
- Segment 4—Hudson to Eau Claire (growing rural communities). Within this approximately 60-mile segment of predominantly rural land uses, three sub-segments are identified: Hudson to Baldwin (Segment 4a), Baldwin to Menomonie (Segment 4b), and Menomonie to Eau Claire (Segment 4c).

### 1.3.2 Transportation

I-94 provides two general purpose travel lanes in each direction throughout most of the Wisconsin portion of the corridor. The roadway increases to three through lanes in each direction through Hudson, WI, and maintains a consistent minimum six-lane cross-section throughout the corridor in Minnesota, with additional travel lanes added at some major interchanges and in higher-volume segments.

Transit service is provided in most of the Minnesota portion of the corridor by Metro Transit. In Wisconsin, regular route transit service is provided within and by the City of Eau Claire. Metro Transit operates both local and express fixed-route bus service between downtown Minneapolis and St. Paul and into the eastern suburban communities. I-94 corridor express bus service currently provides over 80 daily bus trips and 2,200 daily rides. Express bus service continues as far east as Woodbury. The primary Metro Transit express routes that operate in the I-94 corridor and their characteristics are identified in Table 1-1 below.

TABLE 1-1  
Express Bus Service Characteristics, September 2010

Route	Buses per Weekday				Total Trips per Peak	Travel Time to Core of Central Business District (CBD) (in minutes)	Productivity	
	During Peak (Rush Hour) Direction	Midday	Reverse Direction	Daily Rides			Passengers per In Service Hour (PPISH)	
294	5-6	0	3	8-9	0:44	330	21	
351	5	0	2-3	8	0:18	265	39	
353	2	0	0	2	0:20 St. Paul/0:45 Mpls	103	28	
355	13	0	0	13	0:34 to 0:45	896	44	
375	10	0	0	10	0:29 to 0:40	812	59	

*Core of CBD assumes 6<sup>th</sup>/Cedar for St. Paul and 7<sup>th</sup>/Nicollet Minneapolis. October 2010 Ridership/Productivity shown. Source: Metro Transit, November 2010.*

Fixed-route transit service is augmented by demand-responsive service (i.e. Transit Link) provided by the Metropolitan Council, and by commuter van operations supported by several corridor employers. Park and ride lots are located throughout the corridor.

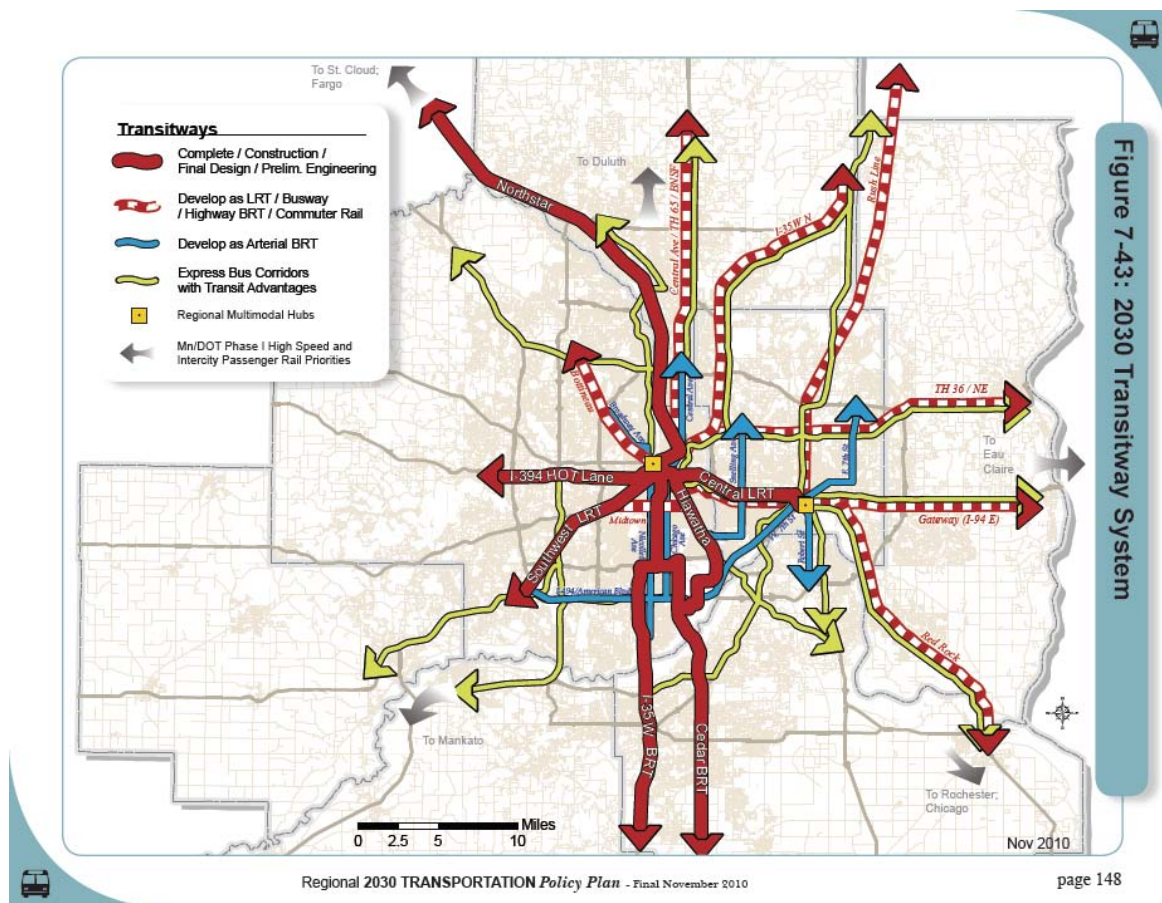
In the Twin Cities, the Gateway Corridor currently offers many miles of bus-only shoulders on I-94. The corridor has also been studied for managed lanes, which would further improve the fixed guideway nature of freeway bus improvements.

The current construction of the LRT Green Line (Central Corridor) between downtown St. Paul and downtown Minneapolis will introduce fixed guideway transit into the western end of the Gateway Corridor study area. Fixed guideway transit, both LRT and commuter rail, has also been studied in other corridors which share a portion of the downtown St. Paul area of the Gateway Corridor. Washington and Ramsey Counties are working together on both the Rush Line and Red Rock transitway corridors.

### 1.3.3 Regional Connections

The Twin Cities Region is in the process of developing a regional system of transitways with a number of projects in various stages of development. The 2030 regional transitway system is shown in Figure 1-4. One LRT corridor is in operation (Blue Line – Hiawatha); one is in construction (Green Line – Central Corridor); and one is in preliminary engineering (Southwest). One commuter rail corridor is in operation (Northstar); and two bus rapid transit (BRT) lines are in the early stages of operation: the Red Line (Cedar Avenue) and the I-35W corridor. All other corridors are in earlier planning stages where a preferred mode has not yet been selected.

FIGURE 1-4  
2030 Twin Cities Regional Transitway System Plan



## 1.4 Previously Completed Studies and Reports

Several regional and local transportation studies over the past few years have addressed the Gateway Corridor. Those which included transit improvements in the Gateway Corridor are summarized in Table 1-2. In addition to the studies noted below, states, regions, counties and cities in the corridor have transportation plans and comprehensive plans that provide policies and plans for transportation improvements in their respective jurisdictions. Many of these plans identify I-94 East (now known as the Gateway Corridor) as a future transitway corridor and/or a major highway corridor in need of capacity improvements. A summary description of previously completed studies is provided in the Technical Memorandum entitled *Review of Previous Studies (February 2011)*.

TABLE 1-2  
Previous Studies incorporating Transit in the Gateway Corridor

Year	Agency	Report Name	Gateway Corridor
2009 and 2010 Update	Metropolitan Council	2030 Transportation Policy Plan (TPP)	Gateway Corridor Included as one of seven transitway corridors needing additional development.
2008	Metropolitan Council	2030 Transit Master Study	Study concluded that the I-94 East (Gateway) Corridor should be studied to determine the most appropriate transit mode and alignment.
2010	Metropolitan Council	2030 Park-and-Ride Plan	Three park-and-ride sties were identified in the Gateway Corridor.
2009	MnDOT	I-94 Managed Lane Study	Includes strategies to improve corridor mobility and maintain transit advantages for existing bus service along I-94 between downtown Minneapolis and downtown St. Paul.
2008	MnDOT	Transit Feasibility Study, St. Croix River Crossing	Investigated feasibility of offering express bus service, park-and-ride lots, shared –ride taxis, dial-a-ride services and other transit modalities for western Wisconsin.
1991	DOTs	Tri-State High Speed Rail Study	Investigated two corridors for high speed rail between the Twin Cities and Chicago. Further study was recommended for the southern corridor (through Rochester).
2000	MnDOT, WisDOT	Tri-State II High Speed Rail Feasibility Study	Evaluated potential of various options in the Chicago-Milwaukee-Twin Cities corridor.
2010	Metropolitan Council	Draft Long-Distance Bus Route Study	Examined the potential for long-distance bus routes from greater Minnesota and Wisconsin to the Twin Cities including consideration of routes from Hudson, WI to Minneapolis and St. Paul.
2010	MnDOT	Minnesota Statewide Passenger and Freight Rail Study	Provides a long-term vision for Minnesota's rail system (both freight and passenger) and includes prioritized improvements over the next 20 years. Includes corridor to Eau Claire as a Phase I project.
2010	MnDOT	Metro District 20-Year Highway Investment Plan 2011-2030	In the Gateway Corridor, includes managed lanes from downtown Minneapolis to I-694 and lower-cost/high benefit projects at various points along I-94.
2009	RCRRA	Union Depot Environmental Impact Study	Provided environmental study for the creation of a multi-modal passenger facility at the historic Union Depot. The Union Depot is scheduled to reopen in

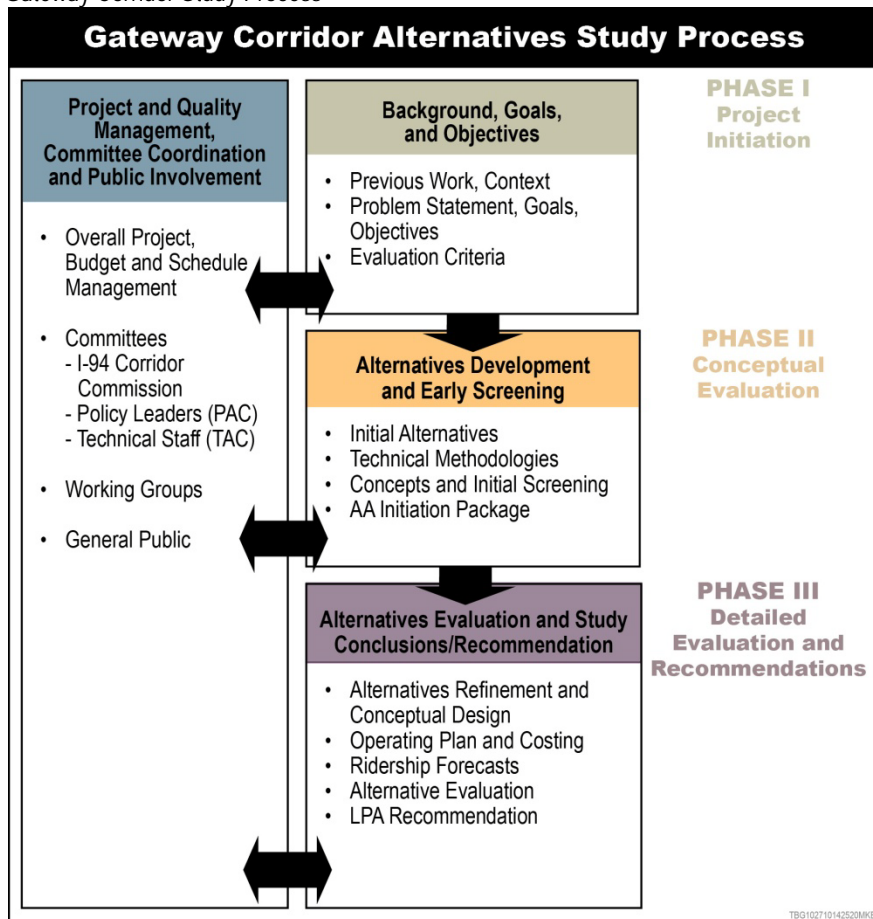
TABLE 1-2  
Previous Studies incorporating Transit in the Gateway Corridor

Year	Agency	Report Name	Gateway Corridor
			2012.
2010	RCRRA	East Metro Railroad Capacity Analysis	Identified capacity and operational improvements required to accommodate planned freight, passenger and commuter rail services.
2010	Chippewa-Eau Claire MPO	Long-Range Transportation Plan Update for the Chippewa-Eau Claire Metropolitan Planning Area	Recommends re-established intercity passenger rail service between Chicago and the Twin Cities with a stop in Eau Claire.

### 1.5 Gateway AA Overview

The approach used to complete the Gateway AA is illustrated in Figure 1-5 and is based on the framework of the required FTA New Starts process noted previously.

FIGURE 1-5  
Gateway Corridor Study Process





The results of the AA study process are documented in the following chapters of this AA report:

- **Public and Stakeholder Involvement.** Section 2 documents the public involvement efforts undertaken during the Gateway Corridor AA process.
- **Problem Statement, Goals and Objectives.** Section 3 describes the problems that need to be addressed in the Gateway Corridor and the reasons why a transitway investment is needed in the corridor. This chapter also describes the goals and objectives that were identified early in the study process and used to develop and evaluate the alternatives studied during the AA process.
- **Universe of Alternatives.** Section 4 describes the full range of alternatives initially considered in the AA and how the alternatives were screened for further detailed technical study in subsequent steps of the AA process.
- **Alternatives Advanced in Detailed Analysis.** Section 5 describes the smaller set of alternatives that were subjected to detailed technical analysis as part of the AA process.
- **Alternatives Evaluation.** Section 6 describes the technical analysis completed and the comparative evaluation of the alternatives studied in the AA.
- **Alternative Refinement and Optimization.** In the final stage of the AA, the most promising alternatives were further analyzed to optimize their design and operation. This process is documented in Section 7.
- **Next Steps.** Section 8 identifies the next steps as Gateway Alternatives advanced through the FTA process.

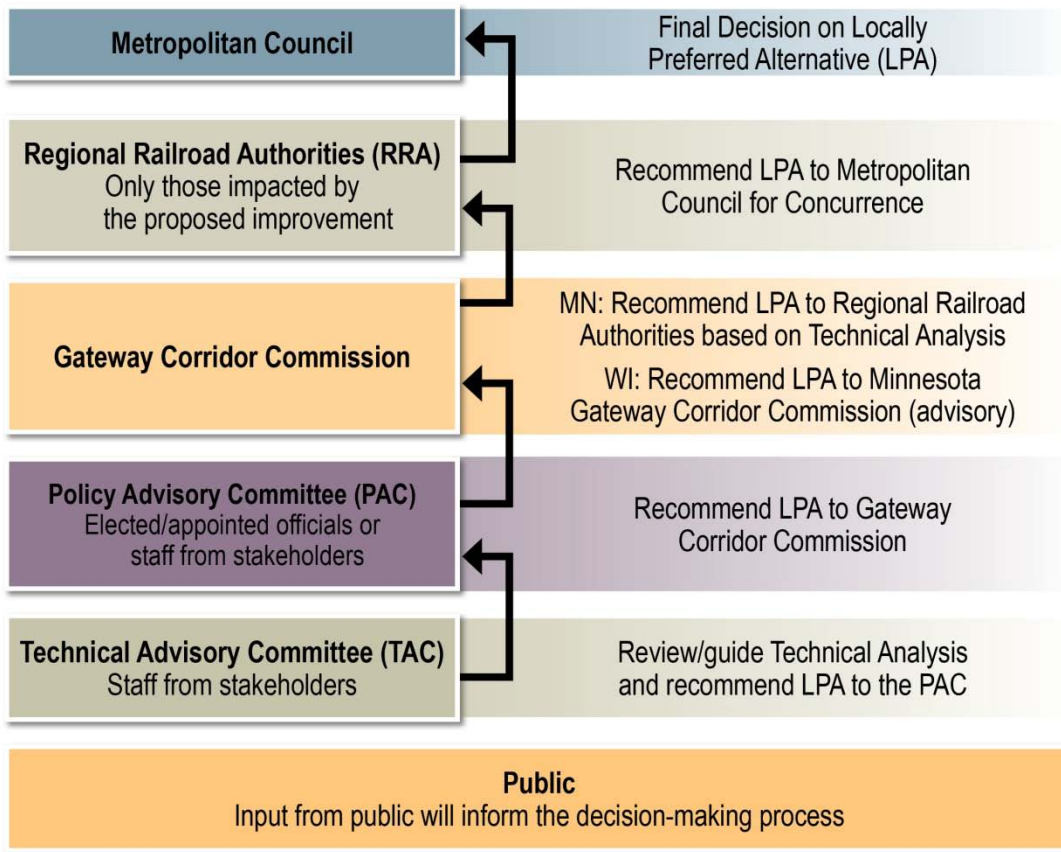
## 2. Public and Agency Involvement

Early and continuous public and agency involvement in the Gateway Corridor AA was sought during the study process and was an important part of the alternatives development and evaluation. The fundamental objectives of public and agency involvement were to ensure that:

- There was collaborative input on alternative transit improvements for the corridor and the criteria against which alternatives were measured and evaluated.
- Stakeholder concerns were reflected in the analysis process.
- Stakeholders were given opportunities to review and comment on findings of the AA.
- There was open access to the decision-making process.

Figure 2-1 summarizes the decision making process utilized during the Gateway Corridor AA. This process was developed at the beginning of the study, and was approved by the technical and policy committees, as well as the Gateway Corridor Commission. These decisions are documented in the Gateway Corridor Coordination Plan (February 2011). This section documents the ways in which the public, technical and policy advisory committees, and the Gateway Coordination Commission were involved throughout the study.

FIGURE 2-1  
Gateway Corridor Decision Making Process



Revised November 2010

TBG102710142520MKE



## 2.1 Summary of Public and Agency Involvement

A Public Involvement Plan was developed early in the AA process and approved in February 2011. The plan identified key stakeholder groups and strategies for continuous, two-way communications with these groups and the general public.

Many local communities are located in the Gateway Corridor. Each community has its own distinct vision for future development, and the role the Gateway Corridor should play in its future. Working with the local communities was a significant aspect of the public involvement process for the AA. This outreach included conversations with city/county administrators, community development and/or community planning departments, public works departments, other departments (for example, parks) if directly affected by the corridor, and elected/appointed officials. Most of these communities were also represented on the Policy Advisory Committee and the Technical Advisory Committee, described below.

<b>Minnesota Communities</b>		<b>Wisconsin Communities</b>	
• Minneapolis	• Afton	• Hudson	• Chippewa Falls
• Saint Paul	• Lakeland	• River Falls	• Eau Claire
• Maplewood	• West Lakeland	• Altoona	• St Croix County
• Oakdale	• Baytown	• Hammond	• Dunn County
• Landfall	• Hennepin County	• New Richmond	• Barron County
• Woodbury	• Ramsey County	• Baldwin	• Eau Claire County
• Lake Elmo	• Washington County	• Menomonie	• Chippewa County

Other agencies and stakeholders represented on the Technical Advisory Committee (TAC) and/or Policy Advisory Committee (PAC) included:

- |   |  |
|---|--|
| • Minnesota Department of Transportation              | • Federal Transit Administration       |
| • Wisconsin Department of Transportation              | • Federal Highway Administration       |
| • Metropolitan Council                                | • Union Pacific Railway                |
| • Metro Transit                                       | • Canadian Pacific Railway             |
| • West Central Wisconsin Regional Planning Commission | • Burlington Northern Santa Fe Railway |

Business stakeholders in the Gateway Corridor include Chambers of Commerce, business associations and large commercial property owners and large employers such as Travelers' Insurance Companies, Ecolab, Securian Financial, 3M, the Hartford Financial and Andersen Windows. There are also several educational institutions located along the Gateway Corridor including the University of Minnesota, Augsburg College, Concordia, Metro State University in Saint Paul, the University of Wisconsin system including River Falls, Stout (Menomonie), and Eau Claire, as well as several technical colleges.



Other public stakeholders include homeowners, renters, neighborhood associations, students, ethnic and cultural organizations, small business owners/operators, and other groups that represent people who live, work and go to school in the corridor. Commuters and the traveling public are also stakeholders. Other schools, emergency service providers, media representatives and environmental advocacy groups are also potential stakeholders.

## 2.2 Project Committee Involvement

### 2.2.1 Gateway Corridor Commission

The Gateway Corridor Commission, the project sponsor, is the decision-making body for the Gateway Corridor AA. The Gateway Corridor Commission is a Minnesota body formed by joint powers agreement. It is composed of the communities in the Minnesota portion of the corridor, Washington and Ramsey Counties and an ex-officio member of the separate Wisconsin Gateway Corridor Coalition. The Gateway Corridor Commission receives the recommendations of the Policy Advisory Committee (PAC). The Commission's decisions and recommendations are forwarded to the Washington County Regional Railroad Authority (WCRRA) and the Ramsey County Regional Railroad Authority (RCRRA). The Railroad Authorities then forward the recommended locally preferred alternative (LPA) to the Metropolitan Council for inclusion in the regional Transportation Policy Plan (TPP) and Transportation Improvement Program (TIP). This process is summarized in Figure 2-1 above.

To facilitate the information sharing and decision processes inherent in accomplishing the AA, WCRRA on behalf of the Gateway Corridor Commission established two committees to advise the Commission throughout the AA study process: (1) the Policy Advisory Committee (PAC), and (2) the Technical Advisory Committee (TAC). These committees and their activities during the AA process are described below.

### 2.2.2 Policy Advisory Committee (PAC)

The PAC is composed of representatives from corridor communities and key partnering agencies including the Wisconsin Gateway Corridor Commission, and provides policy input on study work efforts to the Gateway Corridor Commission. The PAC met 13 times during the AA process. These meetings are listed in Table 2-1 below.

TABLE 2-1  
Summary of PAC Meetings

Meeting #	Date	Purpose of Meeting
Joint PAC/TAC #1	Nov. 16, 2010	Introductions and AA Process
PAC #1	Jan. 5, 2011	Introductions and AA Process
PAC #2	Feb. 2, 2011	Corridor Coordination Plan, Review of Previous Studies, Problem Statement and Goals and Objectives, Fatal Flaw Screening
PAC #3	April 13, 2011	Revised Alternatives
PAC #4	May 25, 2011	Evaluation Criteria and Transit Service Plans
Joint PAC/TAC #2 and PAC #5	June 29, 2011	Alternatives and FTA Initiation Package
Joint PAC/TAC #3 and PAC #6	August 10, 2011	Screening of Alternatives
PAC #7	Sept. 21, 2011	Refinement of Alternatives, Stations, Forecasts and Capital Costs



TABLE 2-1  
Summary of PAC Meetings

Meeting #	Date	Purpose of Meeting
PAC #8	Nov. 2, 2011	Refinement of Alternatives and Stations
PAC #9	Jan. 18, 2012	Ridership Forecasts and Capital Costs
Joint PAC/TAC #4 and PAC #10	March 14, 2012	Evaluation of Alternatives
PAC #11	May 16, 2012	Proposed Optimization of Alternatives
PAC #12	July 25, 2012	Optimization of Alternatives
PAC #13	Sept. 19, 2012	Recommend Alternatives for Next Project Phase

### 2.2.3 Technical Advisory Committee (TAC)

The TAC is composed of technical staff from corridor communities within the study area and affected agencies, including the Wisconsin Gateway Corridor Commission. Key responsibilities of this group include providing technical input and reviewing study findings. Recommendations are made to the PAC. The TAC met 17 times during the AA process. A list of TAC meetings is provided in Table 2-2 below.

TABLE 2-2  
Summary of TAC Meetings

Meeting #	Date	Purpose of Meeting
Joint PAC/TAC #1	Nov. 16, 2010	Introductions and AA Process
TAC #2	Dec. 15, 2010	Coordination Plan, Public Involvement Plan, Previous Studies. Problem Statement, Goals and Objectives
TAC #3	Jan. 5, 2011	Technology Screening; Fatal Flaw Screening of Alternatives
TAC #4	Feb. 16, 2011	Evaluation of Alternatives; Fatal Flaw Screening
TAC #5	March 23, 2011	Revised Alternatives and Travel Forecasting
TAC #6	May 13, 2011	Station Planning and Evaluation Criteria
Joint PAC/TAC #2 and TAC #7	June 29, 2011	Alternatives and FTA Initiation Package
Joint PAC/TAC #3 and TAC #8	August 10, 2011	Screening of Alternatives
TAC #9	Sept. 7, 2011	Modification of Alternatives; Ridership Forecasting and Cost Estimates
TAC #10	Oct. 12, 2011	Alternatives and Stations
TAC #11	Dec. 14, 2011	Environmental and Community Impacts Screening
TAC #12	Jan. 4, 2012	Ridership Forecasts and Cost Estimates
TAC #13	Feb. 12, 2012	Evaluation of Alternatives
TAC #14	Feb. 29, 2012	Evaluation of Alternatives
Joint PAC/TAC #4	March 14, 2012	Evaluation of Alternatives

TABLE 2-2  
Summary of TAC Meetings

Meeting #	Date	Purpose of Meeting
TAC #15	April 25, 2012	Proposed Optimization of Alternatives
TAC #16	July 11, 2012	Optimization of Alternatives
TAC #17	Sept. 5, 2012	Recommend Alternatives for Next Project Phase

## 2.3 Public Involvement Activities

### 2.3.1 Project Website and Facebook Page

The Gateway Corridor Commission (GCC) maintains a project website ([www.thegatewaycorridor.com](http://www.thegatewaycorridor.com)) for the Gateway Corridor. Information about the AA is posted periodically to the website along with project documents and presentations. Links to the project webpage are provided on many of the websites maintained by counties, cities, educational institutions and stakeholder organizations in the corridor. A Facebook project page is also managed by the GCC.

## 2.4 Newsletters and E-Blasts

Project updates in the form of printed and electronic newsletters were provided at key points throughout the study to all stakeholders, the media, and the general public. E-mails were sent to stakeholders who signed up for the electronic distribution list (through the project website, through Facebook, at public meetings, and at presentations to stakeholder organizations). The e-mail distribution list includes communities, educational institutions, and business associations in the corridor as well as all individuals who are interested in direct updates on the project. Seven newsletters were published during the AA process and distributed via email and posted on the project website. In addition, multiple e-blasts were sent out during the AA project.

### 2.4.1 Public Open Houses

Three rounds of public open houses were held during the preparation of the AA. Each round included open houses held in four different locations – St. Paul and Woodbury in Minnesota, Hudson and Eau Claire in Wisconsin - along the corridor, for a total of twelve open houses. Each open house was actively advertised on project, state, regional, city, county and educational institution websites/social media, through local neighborhood and business associations, through news releases, and through posters and flyers. The format of each public open house included a PowerPoint presentation, a series of display boards and layouts, opportunities for written comments, and staff members available to answer questions. A summary of public comments received was prepared for each round of public open houses.

#### 2.4.1.1 Public Open House Round #1

The purpose of Public Open House Round #1 was to introduce the AA process, present the draft problem statement, goals and objectives, and gain input on the initial range of modes and alignment alternatives. Over 120 people attended the four meetings held during this round. Comments during the first round of open houses (February/March 2011) can be generally summarized as follows:

- Desire for improved transit service including all-day service in the corridor, with varying mode preferences
- Concerns about the cost of transitway improvements

- Concerns about the potential impacts of alternatives that would operate on local residential streets, particularly East 3<sup>rd</sup> Street and Minnehaha Avenue in St. Paul
- Desire for economic development and redevelopment in the corridor and desire for development potential to be considered in evaluating alternatives
- Concerns about congestion on I-94
- Questions about station locations, pedestrian accommodations, and accommodations for people with disabilities
- General questions regarding alternative transit modes, alternative transit alignments, and the schedule and scope of AA

#### 2.4.1.2 Public Open House Round #2

The purpose of Public Open House Round #2 was to present the scoping of alternatives with a more fully developed description of alignment alternatives and proposed station locations. Since these meetings served as the official scoping meeting for the AA, legal notices were published to announcement the meetings. Over 110 people attended the four meetings held during this round. Comments during the second round of open houses (July 2011) can be generally summarized as follows:

- Overall support for transit improvements in the Gateway Corridor
- General support for commuter rail (particularly Wisconsin residents), LRT and BRT alternatives
- Concern (particularly on the part of St. Paul residents) that commuter rail does not serve St. Paul neighborhoods
- Need for all-day, every-day transit service and need for feeder bus service to the transitway
- General support for alternatives along I-94
- General questions about what a managed lane is and how it would be operated
- Many concerns about the impacts of the alignment alternatives along East 7<sup>th</sup> Street and White Bear Avenue including concerns about right-of-way acquisition, property impacts, economic impacts, traffic impacts, noise, property values, and general quality of life
- Comments about specific station and park/ride locations
- Concerns about traffic and safety impacts, particularly at grade-level crossings of existing intersections
- Concerns about business impacts during construction

#### 2.4.1.3 Public Open House Round #3

The purpose of Public Open House Round #3 was to present the detailed technical analysis of alternatives, the screening of environmental and community impacts, and the evaluation of alternatives. Over 200 people attended the four meetings held during this round. Comments during the third round of open houses (March/April 2012) can be generally summarized as follows:

- St. Paul meeting

- Overall support for improved transit in the Gateway corridor
- Concerns about the impacts of the East 7<sup>th</sup> Street/White Bear Avenue alignment (both LRT and BRT) including right-of-way acquisition in a mature, stable neighborhood; property value impacts; business impacts; noise; traffic; added transit travel time; quality of life for East Side neighborhoods
- Fewer concerns about the impacts of the Hudson Road and I-94 alignments (both LRT and BRT)
- Support for the screening out of commuter rail because it does not serve St. Paul neighborhoods
- General concerns about property acquisition, impacts on property values, business impacts (especially during construction), traffic impacts, and other community impacts
- Desire for economic development to be considered in the evaluation of alternatives and questions about the potential for economic development benefits for the east side of St. Paul
- Concerns about accessibility for pedestrians, bicycles and people with disabilities
- Questions about the technical analysis, ridership forecasts, noise impacts, and cost estimates
- Woodbury meeting
  - Overall support for improved transit in the Gateway Corridor
  - Generally more support for BRT (I-94/Hudson Road alignment) and Managed Lane alternatives than other alternatives
  - Comments regarding specific station and park/ride locations
  - Concerns about traffic congestion on I-94
  - Concerns about the cost of transitway improvements (capital and operating)
  - Questions about transit ridership forecasts
  - Desire for economic development in the corridor
  - General questions about project schedule and scope
- Hudson and Eau Claire meetings
  - Overall support for improved transit in the Gateway Corridor, particularly express commuter service and reverse commute options
  - Desire for commuter rail – data used in this study should be used to support future passenger rail in the corridor
  - Questions about transit ridership forecasts
  - Interest in economic development to support future commuter or passenger rail

### **2.4.2 Presentations**

Project representatives made presentations to key stakeholder organizations to provide an in-person opportunity to describe project activities and respond to questions. Local issues, concerns and opportunities which arose from these meetings were considered in the AA process of developing and evaluating alternatives. In addition to the regularly scheduled Technical and Policy Advisory Committee meetings listed previously, and the twelve public open houses, over seventy presentations were made to various stakeholder groups during the AA process.

### **2.4.3 News Releases**

News releases were prepared as appropriate throughout the course of the AA study to announce public meetings and other important milestones or events. News releases were distributed to a comprehensive media list that was prepared as part of the Gateway Corridor Commission's Strategic Communications Plan under separate contract/management by WCRRA. All media inquiries were directed to the WCRRA, and WCRRA staff provided interviews as requested.

### **2.4.4 Legal Notices**

Legal notices were published in the Eau Claire Leader Telegram, the St. Paul Pioneer Press, and the Minneapolis Star Tribune for the July 2011 public open houses because these open houses represented the official scoping meetings for the Gateway AA.

## **2.5 Stakeholder Involvement with Specifically Identified Groups**

A special effort was made to identify environmental justice groups represented in the corridor and to identify appropriate communications strategies for those particular groups. Local neighborhood or cultural group newspapers, radio stations and other communications outlets were identified and included on the media list. Meeting announcements were printed in four languages: English, Spanish, Hmong and Somali. Posters announcing public meetings were printed in the same four languages and distributed to a wide range of locations in St. Paul and Maplewood including grocery and drug stores, community and recreation centers, libraries, neighborhood organizations, ethnic restaurants, etc. When requested, translators were provided at public meetings. WCRRA also worked closely with Metropolitan Council's Corridors of Opportunity Community Engagement Team to assist in identifying and responding to local issues, concerns and opportunities.

### 3. Problem Statement, Goals, and Objectives

#### 3.1 Introduction

The Federal Transit Administration (FTA) advises that a corridor's transportation problem should be viewed as the "gap" or difference between the desired level of system performance and the current and projected level of performance<sup>2</sup>. With this direction in mind, this section documents the problem statement, goals and objectives that were developed for the Gateway Corridor.

The corridor problem statement becomes the basis for the future Purpose and Need chapter of a Draft Environmental Impact Statement (DEIS). The DEIS, or other National Environmental Policy Act (NEPA)-required document, is typically the next step in the Federal Transit Administration's New Starts transit project development process.

#### 3.2 Summary Problem Statement

Based on the corridor's travel characteristics and issues summarized in this document, the Gateway Corridor's draft problem statement is summarized as follows:

- Peak period capacity is inadequate in many segments to handle the growing transportation demands of the Gateway Corridor communities, with no programmed projects for increasing highway capacity on I-94.
- A more substantial multimodal transportation network is needed to provide viable options for users and achieve the diverse community land use visions, support economic development, and respond to changing corridor population characteristics.
- The increasing demand for effective transit options requires greater coordination to provide an integrated transit plan for the entire corridor.

#### 3.3 Goals and Objectives

Translating the corridor's problem statement into draft goals and objectives, the following goals and objectives have been developed by the TAC and PAC reflect the intent of state, regional, and community plans for the Gateway Corridor. These goals and objectives were also reviewed at the first series of public meetings, held in February and March of 2011.

##### **Goal 1: Improve Mobility**

*Objectives:* Provide a travel option that:

- responds to corridor travel demand patterns, including reverse commute travel desires
- provides additional travel capacity to mitigate areas of existing and projected congestion
- offers a competitive commute time to a trip made via automobile, improving overall traveler productivity
- enhances intra and inter community mobility
- reliably improves mobility throughout the day

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<sup>2</sup> *Procedures and Technical Methods for Transit Project Planning – Part II, Organization and Management*, Federal Transit Administration Office of Planning and Environment, June 2007 ([http://www.fta.dot.gov/printer\\_friendly/planning\\_environment\\_2396.html](http://www.fta.dot.gov/printer_friendly/planning_environment_2396.html))



- maximizes service to existing and planned corridor population and employment concentrations
- expands and improves linkage to the Twin Cities regional transit system with connections at major regional multimodal hubs
- serves people who depend on transit
- enhances pedestrian and bicycle access

**Goal 2: Provide a Cost-Effective, Economically Viable Transit Option**

*Objectives:* Provide a transit option:

- with acceptable capital costs
- with acceptable operating costs and service productivity
- that enhances regional transit system connectivity
- that integrates efficiently with other modes
- that improves the overall transportation performance of the corridor, including the movement of goods for commerce

**Goal 3: Support Economic Development**

*Objectives:* Provide a transit option that:

- supports local economic development objectives and goals
- supports regional economic development objectives and goals
- supports state and interstate economic development objectives and goals
- enhances the potential for increased transit ridership
- facilitates more efficient land development patterns around stations

**Goal 4: Protect the Natural Environmental Features of the Corridor**

*Objectives:* Provide a transit option that:

- contributes to the sustainability of the corridor and adjacent communities
- minimizes environmental impacts
- is beneficial to the region's air quality
- avoids or minimizes alterations to environmentally sensitive areas

**Goal 5: Preserve and Protect Individual Community Quality of Life**

*Objectives:* Provide a transit option that:

- supports individual community development and redevelopment visions
- accommodates future regional growth in locations consistent with local plans
- is sensitively designed with respect to existing neighborhoods and property values
- enhances access to community facilities
- enhances the image and use of transit service in the corridor by improving the rider experience

## Goal 6: Improve Safety

*Objectives:* Provide a transit option that:

- assists in addressing known travel safety issues along the corridor
- assists in addressing future safety issues along the corridor related to increased traffic congestion
- assists in addressing future safety issues along the corridor related to new fixed guideway transit
- enhances safety for all users

### 3.4 Tiered Goals

Because several alternatives share the same general geographic areas, it was anticipated that the initial evaluation would yield the same or similar results in several categories. For example, the performance of alternatives against land use, and environmental evaluation criteria would likely be similar for multiple alternatives, effectively removing the ability of those criteria to serve as differentiators in comparing alternatives.

The Technical and Policy Advisory Committees identified Tier 1 and Tier 2 goals to address this potential outcome (as documented in both the *FTA Initiation Package* (February 2012) and the *Evaluation Criteria Technical Memorandum* that was adopted by the PAC and TAC (May 2011). The first tier includes the Improve Mobility and Provide a Cost-effective, Economically viable Transit Option goals (Goals 1 and 2). These goals are considered essential for a project to exist. The second tier includes the other four goals which should be achieved assuming a project exists from the application of the tier one goals.

- **Tier 1 Goals**
  - Goal 1 Improve Mobility
  - Goal 2 Provide a Cost-Effective, Economically Viable Transit Option
- **Tier 2 Goals**
  - Goal 3 Support Economic Development
  - Goal 4 Protect the Natural Environmental Features of the Corridor
  - Goal 5 Preserve and Protect Individual Community Quality of Life
  - Goal 6 Improve Safety

### 3.5 Partnership of Sustainable Communities Principles

The goals and objectives outlined above are consistent with the guiding principles of a new partnership between the U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA), and the U.S. Department of Housing and Urban Development (HUD). This “Partnership for Sustainable Communities” is intended to help improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment. The three agencies’ efforts are guided by the following livability principles:

- **Provide more transportation choices.** Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.





- **Promote equitable, affordable housing.** Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.
- **Enhance economic competitiveness.** Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers, as well as expanded business access to markets.
- **Support existing communities.** Target federal funding toward existing communities—through strategies like transit oriented, mixed-use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.
- **Coordinate and leverage federal policies and investment.** Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy
- **Value communities and neighborhoods.** Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban

## 4. Universe of Alternatives

### 4.1 Identification and Screening of Technologies

A comprehensive range of potential transit technologies was identified and put through an early, fatal flaw screening to identify transit modes appropriate to the needs of the corridor. Transit technologies considered during the fatal flaw phase of analysis included:

- Heavy Rail (Fully Grade-Separated High Capacity Rail/Subway)
- Automated Guideway Transit (Monorail, Personal Rapid Transit)
- Inter-City Passenger Rail
- High Speed Rail
- Commuter Rail
- Light Rail Transit (LRT)
- Streetcar
- Bus Rapid Transit (BRT)
- Conventional and Express Bus

Criteria used to determine whether a transit technology would address the corridor's transit needs were:

- Is the technology consistent with the corridor's travel demand?
- Is it a proven technology?
- Is the technology compatible with the region's existing infrastructure?
- Is the technology identified in the Twin Cities Metropolitan Area and State transportation plans?

Following the presentation of operating examples of each type of technology, and discussion with the project's Technical and Policy Advisory Committees (TAC and PAC), the various options were screened, using familiar, "Consumer Reports"-style categories of merit. The results of the fatal flaw evaluation of transit technologies are shown in Figure 4-1, including a recommendation to retain or not retain each technology.

FIGURE 4-1  
Level 1 Transit Technology Screening

Modes	Compatibility with Travel Demand	Proven Technology	Compatibility with Existing Infrastructure	Identified in the Regional/State Transportation Plan(s)	Recommendation
Conventional/Express Bus	○	○	○	○	Retain
Bus Rapid Transit (BRT)	○	○	○	○	Retain
Light Rail Transit (LRT)	○	○	○	○	Retain
Streetcar (Modern)	◐	○	◐	●	Not Retain
Commuter Rail	◐	○	○	○	Retain
High Speed Rail	●	○	◐	◐	Not Retain
Heavy Rail Transit	●	○	●	●	Not Retain
Monorail/Automated Guideway Transit (AGT)	●	○	●	●	Not Retain
Personal Rapid Transit (PRT)	●	●	●	●	Not Retain
LEGEND	<ul style="list-style-type: none"> <li>○ <b>Compatibility with Travel Demand:</b> Ability of service type to accommodate expected travel demand</li> <li>◐ <b>Proven Technology:</b> Fully implemented and able to be evaluated</li> <li>◑ <b>Compatibility with Existing Infrastructure:</b> Does not require massive retrofit of existing infrastructure</li> <li>● <b>Identified in the Regional/State Transportation Plan:</b> Identified in the Metropolitan Council's Transportation Policy Plan; the Minnesota State Rail Plan; and the Draft Wisconsin Rail Plan 2030.</li> </ul>				
○ Fully Meets Criteria					
◐ Partially Meets Criteria					
● Does Not Meet Criteria					



## 4.2 Identification and Screening of Initial Corridor Alignments

The Gateway Corridor TAC worked with the project team's consultant staff to identify multiple alignment options for BRT, LRT, and commuter rail. This initial universe of alignment alternatives is itemized below and illustrated on Figure 4-2.

Segment 1: Downtown Minneapolis to Downtown St. Paul, Minnesota

- 4 BRT alignments
- 2 LRT alignments
- 2 Commuter Rail alignments

Segment 2: Downtown St. Paul to TH 95/Manning Avenue - Woodbury, Minnesota

- 9 BRT alignments
- 5 LRT alignments
- 1 Commuter Rail alignments

Segment 3: Manning Avenue to Carmichael Road - Hudson, Wisconsin

- 2 BRT alignments
- 2 LRT alignments
- 1 Commuter Rail alignments

Segment 4: Hudson to Eau Claire, Wisconsin

- 4 BRT alignments
- 1 LRT alignments
- 1 Commuter Rail alignments

FIGURE 4-2A  
Full Universe of Alternatives

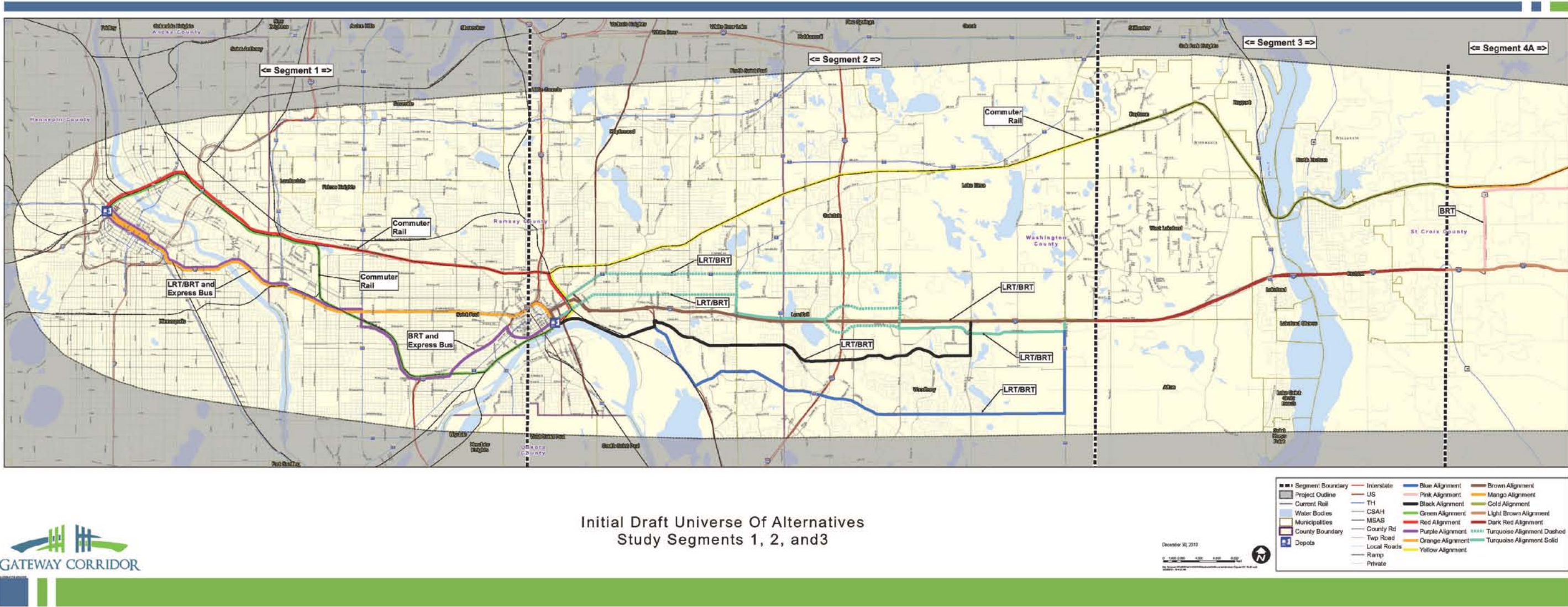
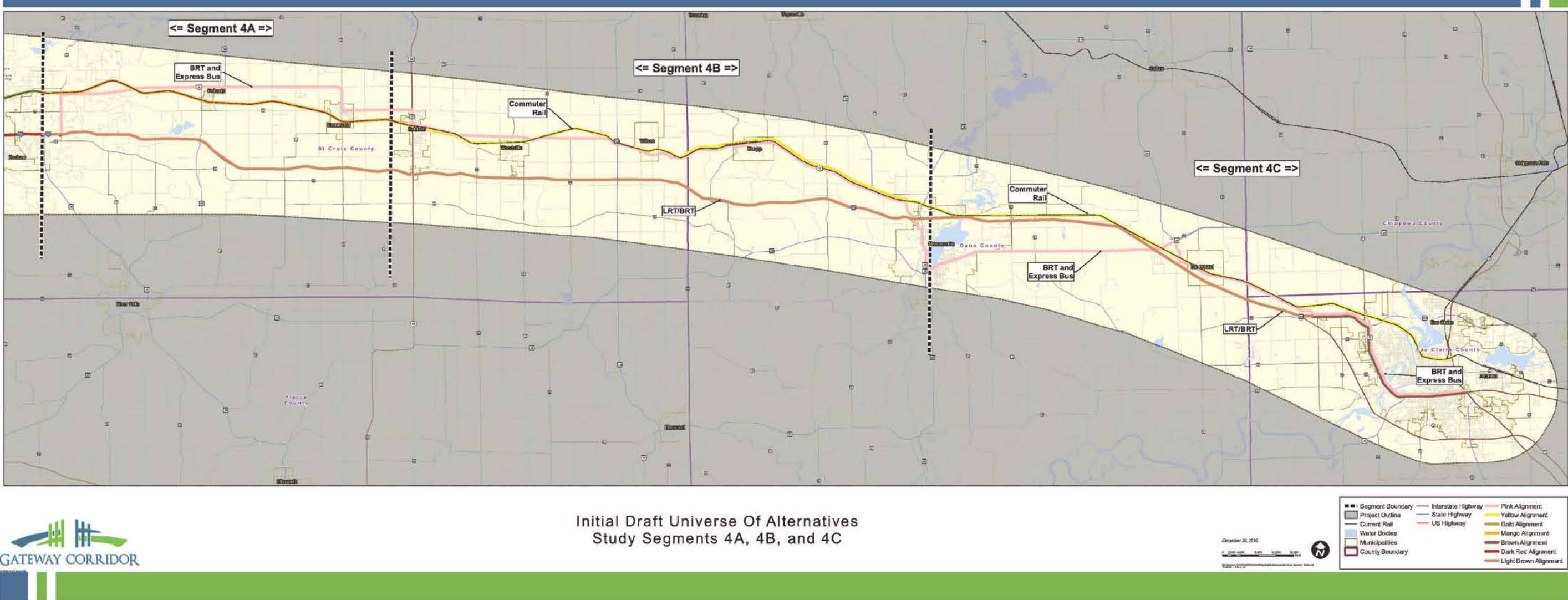


FIGURE 4-2B  
Full Universe of Alternatives



## 4.3 Fatal Flaw Screening of Initial Universe of Alternatives

### 4.3.1 Fatal Flaw Evaluation Criteria

The universe of alternatives was next put through a high-level fatal flaw evaluation. The criteria used for this fatal flaw evaluation are shown in Table 4-1.

TABLE 4-1  
Evaluation Criteria Used to Screen the Initial Universe of Alternatives (Fatal Flaw Analysis)

<b>1. Transportation Mobility:</b>
A. Does this alternative add transportation capacity in congested areas?
B. Does the alternative serve the transit markets in the corridor?
C. Would the alternative provide new service (i.e., not duplicate current or planned transit service)?
D. Does the alternative connect to the major multi-modal hubs in St. Paul and Minneapolis, supporting the region's current investment?
<b>2. Community and Agency Planning: Consistency with Transportation, Land Use and Economic Development Plans:</b>
A. Is the alternative generally consistent with current regional planning?
B. Is the alternative generally consistent with current community plans?
<b>3. Cost Effectiveness</b>
A. Is the alternative compatible with existing and planned infrastructure?
B. Would the alternative result in feasible capital costs?
C. Would the alternative result in operating costs comparable to other transit investments the region is considering?
<b>4. Natural Environment</b>
A. Is implementation of this alternative possible without impacting environmentally sensitive areas?

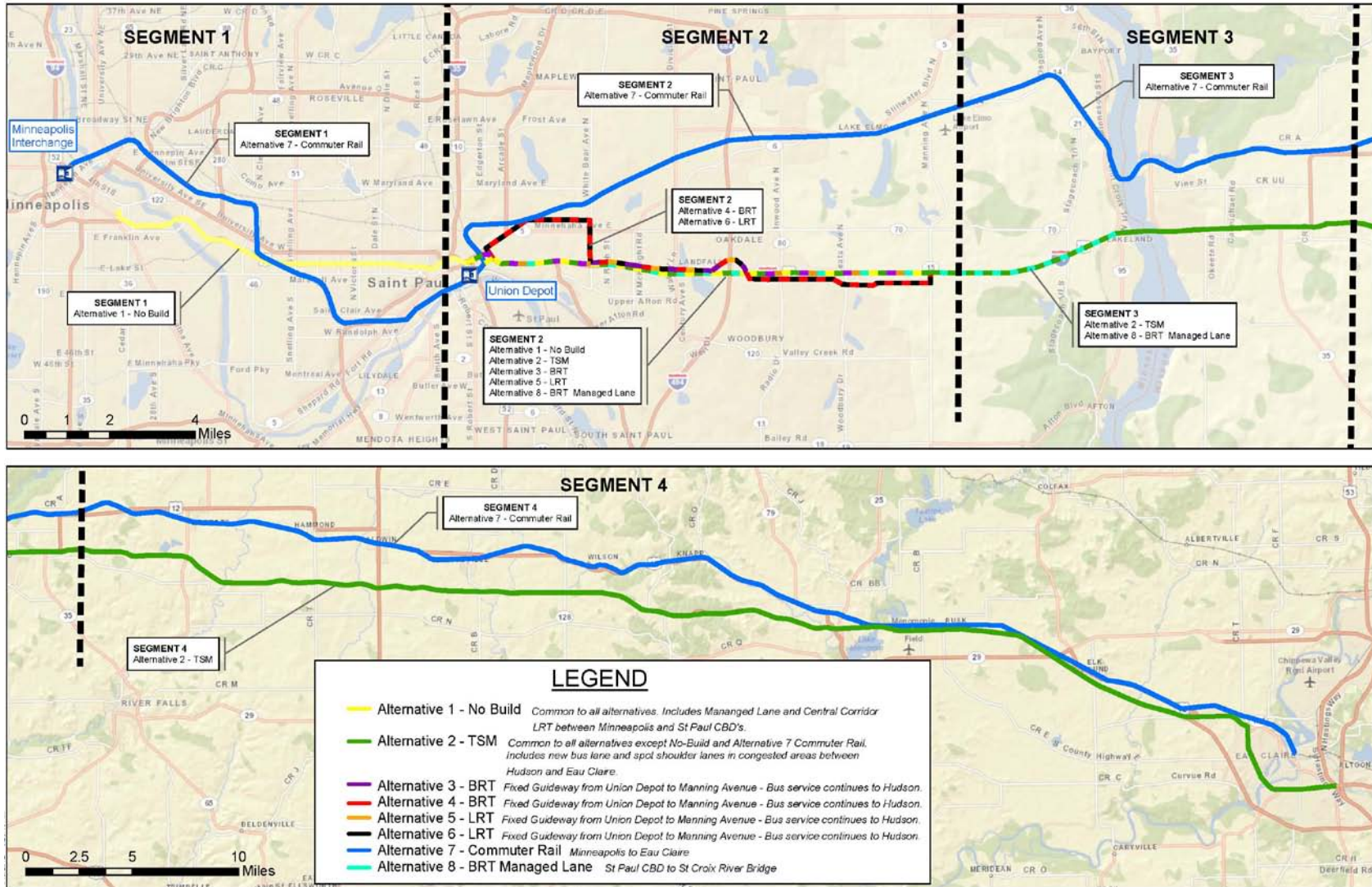
### 4.3.2 Initial Screening Results

Appendix A documents the results of the evaluation completed on the initial universe of alternatives. An initial list of seven (7) alternatives was recommended to carry forward for continued analysis. Following this initial evaluation, the PAC recommended that a managed lane alternative be added to the universe of alternatives.<sup>3</sup> Following consultation with MnDOT and the Metropolitan Council, the new “BRT Managed Lane” alternative was added, bringing the number of alternatives recommended to carry forward to eight (8).

All eight alternatives, shown on Figure 4-3, were presented during the second series of public open house meetings held throughout the corridor. Public comment supported the proposed slate of the recommended eight alternatives proceeding for further development and consideration.

<sup>3</sup> As of the writing of this report, the region had high occupancy toll (HOT) lanes on two freeways—I-394, and I-35W south of downtown Minneapolis. Both of these are variably priced depending on the level of congestion (“dynamically priced”), and called “MnPASS Lanes.” The I-35W MnPASS lane includes an online BRT station at 46th Street, the first such station in the Twin Cities area.

FIGURE 4-3  
Gateway Alternatives Carried into Detailed Analysis





## 5. Alternatives Advanced into Detailed Analysis

### 5.1 Introduction

This section describes the eight alternatives recommended for further development and analysis as part of the Gateway Corridor Alternatives Analysis. A detailed description of each alternative, including typical cross-sections, is included in the *Final Detailed Definition of Alternatives Report* (August 2012).

Three types of station configurations are proposed for the Gateway Corridor alternatives: Side-loading platforms (“side platforms”); center-loading platforms (“center platforms”); and split-side-loading platforms (“split side platforms”). Platform height will be determined based on the platform height needed to provide level boarding for the selected transit mode – BRT, LRT, or commuter rail. The assumed platform dimensions for LRT, BRT, and commuter rail are consistent with the Metropolitan Council Regional Transitway Guidelines (February 2012). Key characteristics of each platform type are illustrated in the *Final Detailed Definition of Alternatives Report*.

### 5.2 Description of Alternatives

This section contains a description of each alternative, including:

- Text description of the alignment
- Conceptual map of the alternative alignment
- Location of station stops (walk-up stations)
- Location of station stops with park and ride facilities
- Transit service operating plans

#### 5.2.1 Alternative 1: No Build (Express and Local Bus)

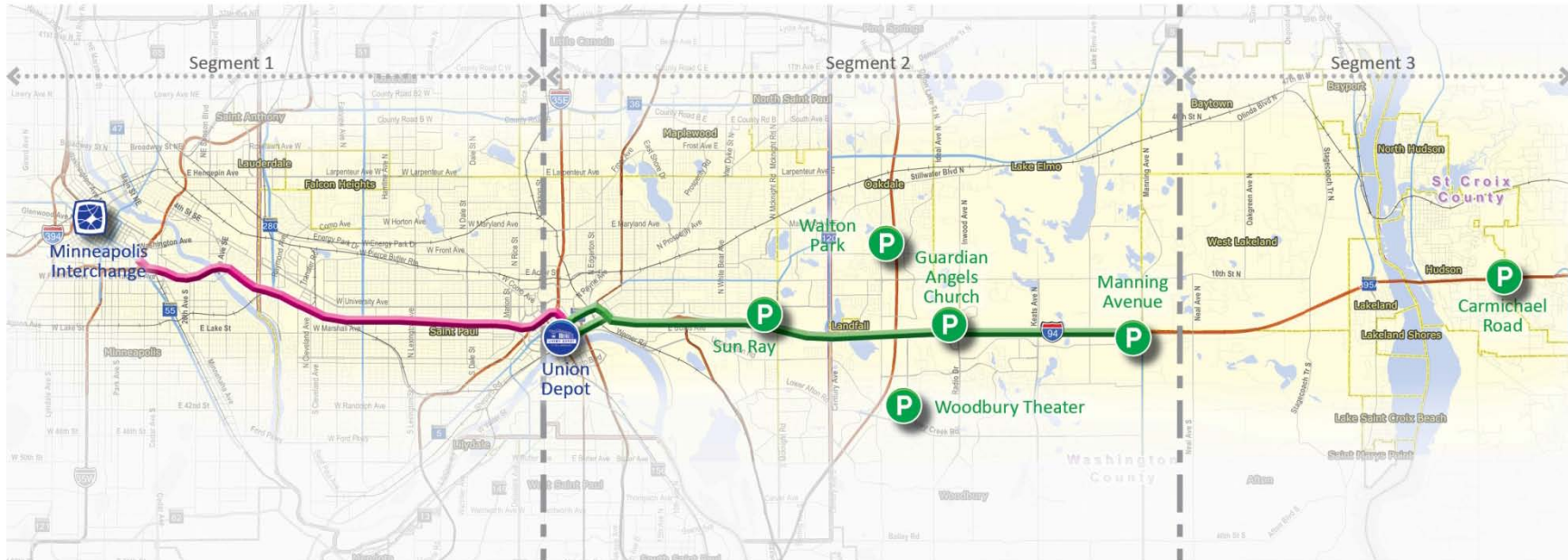
##### 5.2.1.1 Alternative 1 Overview

Alternative 1 represents the transit service in the corridor by year 2030 that is already planned and programmed in the region’s Transportation Policy Plan. Alternative 1 maintains current and programmed express and local bus service between downtown Minneapolis, St. Paul and Woodbury, Minnesota and adds the following elements:



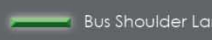
- Buses in managed lanes between downtown Minneapolis and Marion Street, west of downtown St. Paul - planned and programmed for implementation by 2030.
- Central Corridor light rail transit (LRT) that will operate between downtown Minneapolis and downtown St. Paul beginning in 2014.
- Continuous bus shoulder lanes will be added to I-94 between St. Paul and Manning Avenue in Woodbury/Lake Elmo. Within the Twin Cities region, buses move to bus shoulder lanes when the speed of general traffic is 35 miles per hour or less.

Alternative 1 is illustrated on Figure 5-1.

FIGURE 5-1  
Alternative 1, No Build



Legend:

-  Union Depot Station
-  Park and Ride Transit Station
-  Walk up Transit Stop
-  Minneapolis Interchange Station
-  Managed Lane
-  Bus Shoulder Lane



**Alternative 1: No Build**  
October 4, 2012

CH2MHILL Team

Gateway Corridor Alternatives Analysis

### 5.2.1.2 Alternative 1 Operating Plan

- Express routes would use planned managed lanes and bus shoulder lanes
- Midday service on current Express Bus Route 94 would be replaced by Central Corridor LRT, as reflected in current regional plans
- Additional trips on existing routes (as currently planned by Metro Transit):
  - Route 353 Woodbury-St. Paul-Minneapolis: 6 additional trips (3 westbound in am peak/3 eastbound in pm peak)
  - Route 355 Woodbury-Minneapolis: 10 additional trips (5 westbound in am peak/5 eastbound in pm peak)
  - Route 375 Oakdale-Minneapolis: 8 additional trips (4 westbound in am peak/4 eastbound in pm peak)
- New express routes:
  - Route 352 Woodbury Drive/Keats Avenue - Minneapolis: 20 trips (10 westbound in am peak/10 eastbound in pm peak)
  - Route 376 Manning Ave-Minneapolis: 20 trips (10 westbound in am peak/10 eastbound in pm peak)
  - Route 386 Manning Ave-St. Paul: 8 trips (4 westbound in am peak/4 eastbound in pm peak)

Table 5-1 displays proposed Year 2030 service under the No Build Alternative.

TABLE 5-1  
Alternative 1: No Build Operating Plan Summary

Routes	Weekday Peak Trips	Weekday Off-peak Trips	Weekday Span	Weekend Peak Trips	Weekend Off-peak Trips	Weekend Span
Route 352 Woodbury—Mpls	10 additional trips	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Route 353 Woodbury—St. Paul—Mpls	6 additional trips	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Route 355 Woodbury—Mpls	10 additional trips	No Service	6–9am 3–6 pm	No Service	No Service	No Service
Route 375 Oakdale—Mpls	8 additional trips	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Route 376 Manning Ave—Mpls	20 trips	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Route 386 Manning Ave—St. Paul	8 trips	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Route 94 midday service discontinued						

### 5.2.1.3 Alternative 1 Stations

No Build Alternative stations are listed below:

- Union Depot, downtown St. Paul
- Sun Ray Transit Center, St. Paul (informal small park and ride lot) (existing)
- Guardian Angels Church park and ride lot, Oakdale (existing)
- Walton Park and ride lot, Oakdale (existing)
- Woodbury Theatre park and ride lot, including 450-space expansion
- New 550-space park and ride lot in the vicinity of Manning Avenue, Woodbury/Lake Elmo

Buses would also stop at these two locations:

- 2<sup>nd</sup> Avenue/Marquette Avenue Bus lane stops, downtown Minneapolis
- 6<sup>th</sup> Street and Cedar Avenue, downtown St. Paul

## 5.2.2 Alternative 2: Transportation System Management (TSM)

### 5.2.2.1 Alternative 2 Overview

Alternative 2, shown on Figure 5-2, includes proposed bus-based transit improvements and less costly infrastructure changes compared to other build alternatives. Express bus service would be expanded between downtown Minneapolis and Eau Claire, Wisconsin along I-94 including the following elements:

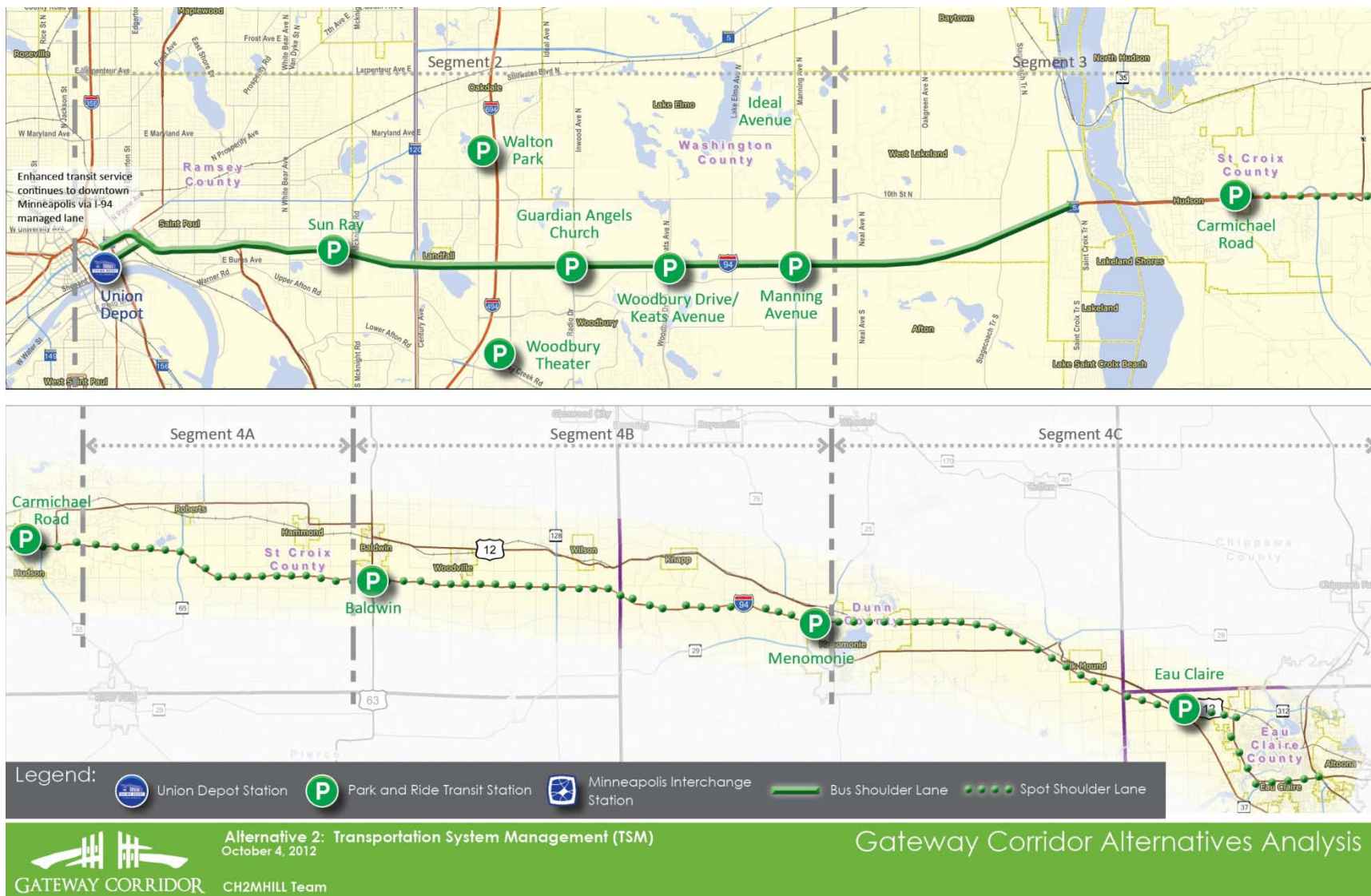
- All service and facility elements of the No Build alternative (see Section 5.3.1.2)
- Peak period, peak direction bus service between the downtowns of Minneapolis and St. Paul and Eau Claire, Wisconsin
- Station-to-station bus service to downtown St. Paul from Hudson, Wisconsin
- Bus shoulder lanes extended east to Highway 95 in Lakeland
- New park and ride lots in Woodbury in Minnesota and Hudson, Baldwin, Menomonee and Eau Claire in Wisconsin

The Metropolitan Council and MnDOT evaluated the advisability of expanding the I-94 managed lane east of downtown St. Paul (Gateway Segment 2) as a component of a TSM alternative. In developing the TSM alternative for Gateway, however, the Council stated that such an element would not be either low-cost or low-impact, and thus should not be included in a TSM alternative.

### 5.2.2.2 Alternative 2: TSM—Operating Plan

- All No Build service changes (see Section 5.3.1.2)
- Proposed Alternative 2 routes:
  - Route 395 Hudson to St. Paul: station-to-station service between Hudson-Carmichael Road park and ride and St. Paul (6<sup>th</sup> Street and Cedar Avenue)
    - At Union Depot Route 395 commuters would connect with Central Corridor LRT or local/express routes to continue into Minneapolis.
  - Route W-100 Eau Claire-Minneapolis: peak period, peak direction express bus service between Eau Claire, Wisconsin, downtown St. Paul and downtown Minneapolis. Express buses between Eau Claire and Carmichael Road in Hudson, with stops in Menomonee

FIGURE 5-2  
Alternative 2: Transportation System Management (TSM) Alternative





and Baldwin, Wisconsin; express runs from Hudson to St. Paul, and then onto downtown Minneapolis. Between Highway 95 in Lakeland, and Eau Claire, Route W-100 would operate in general purpose lanes on I-94.

- Four park and ride stops: Hudson/Carmichael Road; Baldwin/Highway 63; Menomonie/Highway 25; Eau Claire/Highway 12. From Hudson/Carmichael Road the route will express to downtown St. Paul on I-94 and then to downtown Minneapolis.
- Peak period weekday service includes 5 westbound trips in am peak and 5 eastbound trips in pm peak, consistent with projected demand.
- Off-peak weekday service includes 2 westbound and 2 eastbound midday trips between 10:00 am and 2:30 pm, consistent with projected demand.

Table 5-2 displays proposed transit service for the TSM Alternative.

TABLE 5-2  
Alternative 2: TSM Operating Plan Summary

Routes	Weekday Peak Freq/Trips	Weekday Off-peak Freq/Trips	Weekday Span	Weekend Peak Freq/Trips	Weekend Off-peak Freq/Trips	Week-end Span
<b>All No Build Improvements</b>						
Route 395 Hudson —St. Paul	10 min	15 min	6 am–Midnight	30 min	30 min	6 am - Midnight
W-100 Eau Claire —St. Paul—Mpls	30 min (10 trips)	90 min (4 trips)	6 am–7 pm	No Service	No Service	No Service

### 5.2.2.3 Alternative 2: TSM—Stations

Route 395 station stops would be located at:

- 6<sup>th</sup> Street and Cedar Avenue, downtown St. Paul
- Union Depot, downtown St. Paul

Route 395 station stops with park and ride facilities would be located in the vicinity of:

- Sun Ray Shopping Center, St. Paul
- Guardian Angels Church, Oakdale
- Woodbury Drive/Keats Ave (County Road 19), Woodbury/Lake Elmo
- Manning Ave (County Road 15), Woodbury/Lake Elmo
- Carmichael Road, Hudson

Route W-100 park and ride connections would be located at:

- Carmichael Road, Hudson
- Highway 63, Baldwin
- Highway 25, Menomonie
- Highway 12, Eau Claire

### 5.2.3 Alternative 3: Hudson Road/I-94 BRT

#### 5.2.3.1 Alternative 3 Overview

Alternative 3 features BRT in an exclusive, two-way guideway (see Figure 5-3). The exclusive BRT guideway ends at Manning Avenue; BRT service would continue on I-94 to Carmichael Road in Hudson, Wisconsin. Alternative 3 provides a commuter-oriented service, with 12 stations and includes the following improvements:

- All service and facility elements of the No Build (Alternative 1) and TSM (Alternative 2)
- Exclusive bus-only roadway along I-94 from St. Paul to the vicinity of Manning Avenue
- BRT service in I-94 bus shoulders and existing general purpose lanes between Lakeland, Minnesota and Hudson, Wisconsin.

#### 5.2.3.2 Alignment Description for Alternative 3

This section provides details of the Alternative 3 alignment. Detailed plan and critical profile drawings are included in the *Final Detailed Definition of Alternatives Report*. The dedicated BRT guideway:

- Extends east from the Union Depot on Kellogg Boulevard, turns southeast onto Mounds Boulevard; transitions into a new exclusive bus-only roadway on Hudson Road adjacent to the north side of I-94.
- East of the I-94 interchange with Johnson Parkway, extends north at grade to cross Etna Street, following the interchange ramps back south to the north side of I-94.
- Follows interchange ramps at White Bear Avenue, Ruth Street, McKnight Avenue and Century Avenue; crosses these streets at grade and returns to its adjacent location on the north side of I-94.
- Runs adjacent to Hudson Road past the Sun Ray Shopping Center and 3M corporate headquarters, until extending north to 4th Street North to pass over I-694 in Oakdale.
- Moves southeast through the Crossroads/Oaks Business Park and enters the median of I-94 east of the I-494/I-694 interchange.
- Remains in the median of I-94 until Manning Avenue, where the guideway comes out of the median and south into the Manning Avenue park and ride.

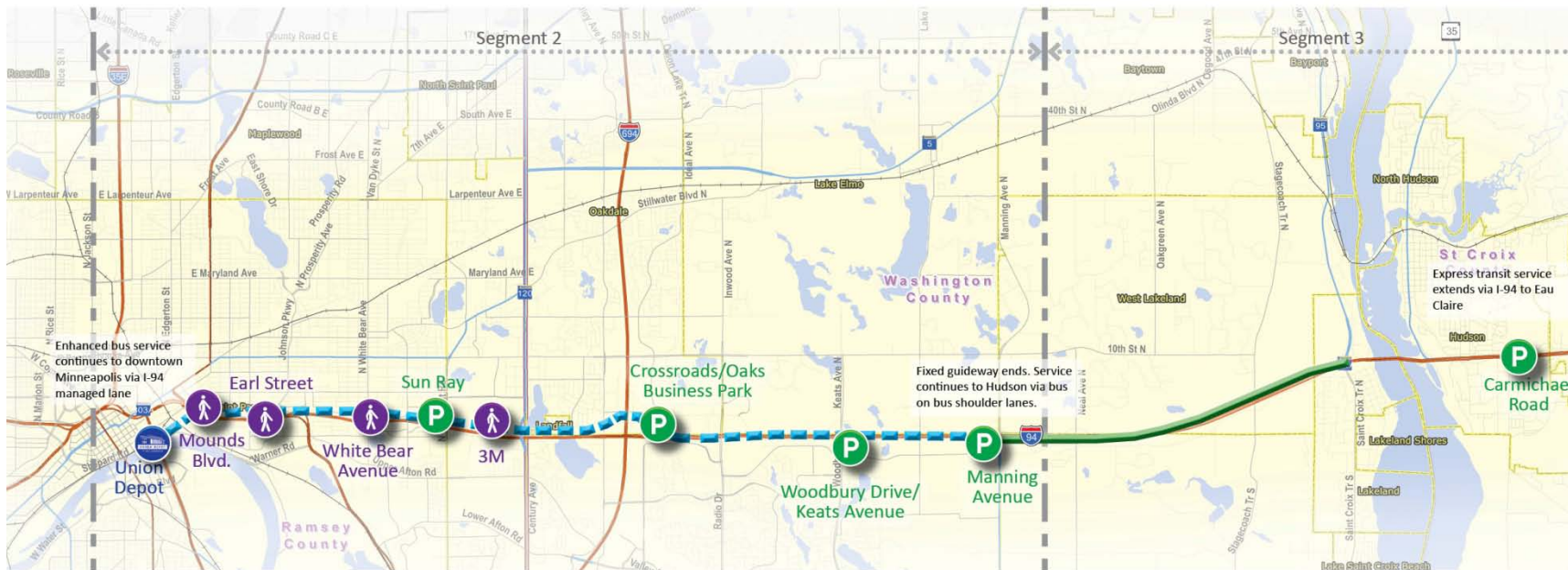
Consistent with the improvements identified in the TSM alternative, express buses would operate in general purpose lanes on I-94 between Manning Avenue and Eau Claire. BRT buses would continue on the same frequency to the Hudson-Carmichael park and ride facility.




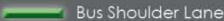

The conceptual design of the BRT alternatives provides one 16-foot runningway in each direction, barrier-separated from both local roads and from freeway general traffic lanes. In freeway segments of the alternatives, the two BRT lanes are separated from each other by an additional barrier.


#### 5.2.3.3 Alternative 3 Operating Plan

- All No Build service changes
- Proposed Routes:
  - Route 396 Manning Avenue-St. Paul BRT: station-to-station service between Manning Avenue park and ride and St. Paul (6<sup>th</sup> Street and Cedar Avenue)

FIGURE 5-3  
Alternative 3: Hudson Road/I-94



Legend:  Union Depot Station  Park and Ride Transit Station  Walk up Transit Stop  Bus Shoulder Lane  Alternative 3 - BRT

 **Alternative 3: BRT - Hudson Road/ I-94**  
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- BRT service continues as high frequency service to the Hudson-Carmichael park and ride facility.
  - At the Union Depot Route 396 commuters would connect with Central Corridor LRT or existing express bus routes to continue into Minneapolis.
- Five new feeder routes connecting to BRT stations:
  - Stillwater (connects at Manning Avenue Station)
  - Oakdale East (connects at Sun Ray Station)
  - Oakdale West (connects at Sun Ray Station)
  - Woodbury East (connects at Oaks Business Park Station)
  - Woodbury West (connects at Sun Ray Station)
- Route W-100: Eau Claire-Minneapolis (from TSM Alternative)
  - Four park and ride stops: Hudson/Carmichael Road; Baldwin/Highway 63; Menomonie/Highway 25; Eau Claire/Highway 12. From Hudson/Carmichael Road the route will express to downtown St. Paul on I-94 and then downtown Minneapolis.
  - Peak period weekday service includes 5 westbound trips in am peak and 5 eastbound trips in pm peak.
  - Off-peak weekday service includes 2 westbound and 2 eastbound midday trips between 10:00 am and 2:30 pm.

Table 5-3 displays proposed transit service for Alternative 3. The service detailed in Table 5-3 also applies to Alternatives 4, 5 and 6. These four alternatives share the same service periods during weekdays, weekends and holidays. All share the same frequency between vehicles as well.

TABLE 5-3  
Alternative 3: Hudson Road/I-94 BRT Operating Plan Summary

Routes	Weekday Peak Trips/Freq	Weekday Off-peak Trips/Freq	Weekday Span	Weekend Peak Trips/Freq	Weekend Off-peak Trips/Freq	Week-end Span
<b>All No Build Improvements</b>						
Route 396 Hudson—St. Paul BRT	10 min	15 min	6 am - Midnight	30 min	30 min	6 am - Midnight
Woodbury East Feeder	30 min	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Woodbury West Feeder	30 min	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Oakdale East Feeder	30 min	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Oakdale West Feeder	30 min	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
Stillwater Feeder	30 min	No Service	6–9 am 3–6 pm	No Service	No Service	No Service
W-100 Eau Claire—St. Paul—Mpls	10 trips (every 30 min)	4 trips (every 90 min)	6 am–7 pm	No Service	No Service	No Service

#### 5.2.3.4 Stations for Alternative 3

Route 396 walk-up stations or stops would be located at:

- 6<sup>th</sup> Street and Cedar Avenue stop, downtown St. Paul
- Union Depot, downtown St. Paul
- Metro State/Mounds Boulevard, St. Paul
- Earl Street, St. Paul
- White Bear Avenue, St. Paul
- 3M Campus, Maplewood

Route 396 station stops with park and ride facilities would be located in the vicinity of:

- Sun Ray Shopping Center, St. Paul
- Crossroads/Oaks Business Park, Oakdale
- Woodbury Drive/Keats Ave (County Road 19), Woodbury/Lake Elmo
- Manning Ave (County Road 15), Woodbury/Lake Elmo
- Carmichael Road, Hudson

W-100 park and ride connections would be located at these locations in Wisconsin:

- Carmichael Road, Hudson
- Highway 63, Baldwin
- Highway 25, Menomonie
- Highway 12, Eau Claire

Where Alternative 3 is located within the I-94 median, or adjacent to the freeway, enclosed vertical circulation elements are provided on both sides of the surface-level cross street. Vertical circulation elements include both elevators and stairs. Figures illustrating typical cross sections for Alternative 3 are included in the *Final Detailed Definition of Alternatives Report*.

### 5.2.4 Alternative 4: East 7th Street/White Bear Avenue/Hudson Road BRT

#### 5.2.4.1 Alternative 4 Overview

Alternative 4 also features BRT in an exclusive, two-way guideway. This alternative provides more localized access to communities in the urbanized areas of the corridor east of downtown St. Paul and through Maplewood, Oakdale, and Woodbury. Alternative 4, illustrated in Figure 5-4, includes 16 stations. Alternative improvements are summarized below:

- All service and facility elements of the No Build (Alternative 1) and TSM (Alternative 2)
- Exclusive bus-only roadway from St. Paul to the vicinity of Manning Avenue
- BRT service in I-94 bus shoulders and existing general purpose lanes between Lakeland, Minnesota and Hudson, Wisconsin

#### 5.2.4.2 Alignment Description for Alternative 4

This section describes the Alternative 4 alignment. Detailed plan and critical profile drawings are included in the *Final Detailed Definition of Alternatives Report*. The BRT dedicated guideway:

- Begins at Union Depot, in an exclusive bus-only guideway, and extends east using Kellogg Boulevard and then northbound Mounds Boulevard.
- Turns northeast at East 7th Street.
- Turns south at White Bear Avenue, then east just south of Old Hudson Road (the frontage road for I-94).



- Continues east through St. Paul, Maplewood, Oakdale and Woodbury along the north frontage road, past the Sun Ray Shopping Center and 3M headquarters, until extending north to 4th Street North to overpass I-694 in Oakdale.
- Crosses over I-94 to Old Hudson Road (the south frontage road of I-94), where it to runs east to the Manning area station.

To accommodate implementation of BRT within lower-speed city streets, reconfiguration of the existing street right of way would be required to provide one general traffic lane in each direction, one BRT lane in each direction, and 10-foot sidewalks on both sides of the street. The BRT lanes and general traffic lanes would be separated by low “mountable curbs,” which provide a tactile indication to drivers not to stray into the transit lane; emergency vehicles can mount these curbs. Typical cross sections are included in the *Final Detailed Definition of Alternatives Report*.

#### 5.2.4.3 Alternative 4 Operating Plan

- All No Build service changes
- Proposed Routes:
  - Route 396 Manning Avenue-St. Paul BRT: station-to-station service between Manning Avenue park and ride and St. Paul (6th Street and Cedar Avenue)
  - BRT service continues as high frequency service to the Hudson-Carmichael park and ride facility.
    - At Union Depot Route 396 commuters would connect with Central Corridor LRT or existing express bus routes to continue into Minneapolis.
  - Five new feeder routes connecting to BRT stations:
    - Stillwater (connects at Manning Avenue Station)
    - Oakdale East (connects at Sun Ray Station)
    - Oakdale West (connects at Sun Ray Station)
    - Woodbury East (connects at Oaks Business Park Station)
    - Woodbury West (connects at Sun Ray Station)
  - Route W-100: Eau Claire-Minneapolis (from TSM Alternative)
    - Four park and ride stops: Hudson/Carmichael Road; Baldwin/Highway 63; Menomonie/Highway 25; Eau Claire/Highway 12. From Hudson/Carmichael Road the route will express to downtown St. Paul on I-94 and then downtown Minneapolis.
    - Peak period weekday service includes 5 westbound trips in am peak and 5 eastbound trips in pm peak.
    - Off-peak weekday service includes 2 westbound and 2 eastbound midday trips between 10:00 am and 2:30 pm.

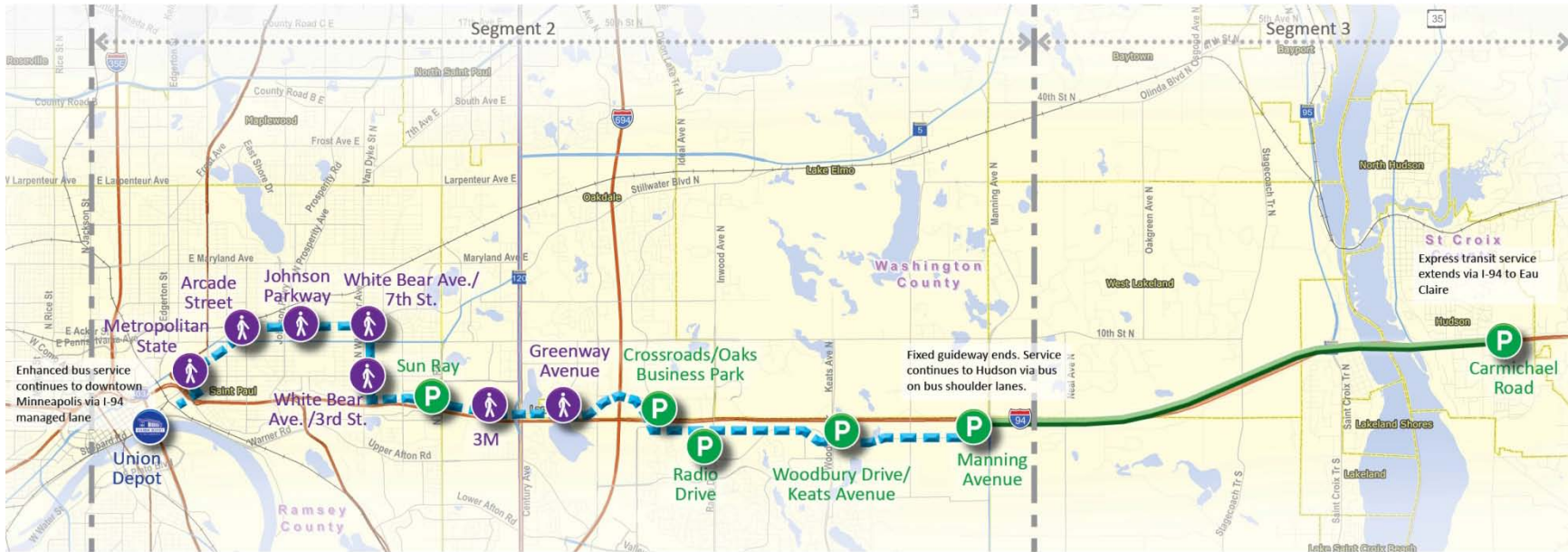
As noted previously, Table 5-3 displays proposed transit service for Alternative 4.

#### 5.2.4.4 Alternative 4 Stations

Route 396 walk-up station or stops would be located near:

- 6<sup>th</sup> Street and Cedar Avenue stop, downtown St. Paul
- Union Depot, downtown St. Paul

FIGURE 5-4  
Alternative 4: East 7<sup>th</sup> Street/White Bear Avenue/Hudson Road BRT



Legend:  Union Depot Station  Park and Ride Transit Station  Walk up Transit Stop  Alternative 4 - BRT  Bus Shoulder Lane

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- E. 7<sup>th</sup> Street and Mounds Blvd/Metropolitan State University, St. Paul
- Arcade Avenue at E. 7<sup>th</sup> Street/Beacons Bluff, St. Paul
- Johnson Parkway at E. 7<sup>th</sup> Street, St. Paul
- East 7<sup>th</sup> Street at White Bear Avenue, St. Paul
- East 3<sup>rd</sup> Street at White Bear Avenue, St. Paul
- 3M Headquarters, Maplewood
- Greenway Avenue, Landfall

Route 396 station stops with park and ride facilities would be located in the vicinity of:

- Sun Ray Shopping Center, St. Paul
- Crossroads/Oaks Business Park, Oakdale
- Radio Drive, Woodbury
- Woodbury Drive/Keats Ave (County Road 19), Woodbury/Lake Elmo
- Manning Avenue (County Road 15), Woodbury/Lake Elmo
- Carmichael Road, Hudson

W-100 park and ride connections would be located at:

- Carmichael Road, Hudson
- Highway 63, Baldwin
- Highway 25, Menomonie
- Highway 12, Eau Claire

## 5.2.5 Alternative 5: Hudson Road/I-94 LRT

### 5.2.5.1 Alternative 5 Overview

Alternative 5 provides a double-track, exclusive LRT guideway, following an alignment identical to that of Alternative 3. This alternative, with 12 stations, provides a commuter-oriented service. Figure 5-5 below illustrates Alternative 5.

Alternative 5 includes the following improvements:

- All service and facility elements of the No Build (Alternative 1) and TSM (Alternative 2) (see Sections 5.3.1.2 and 5.3.2.2)
- Double-track LRT along I-94 from St. Paul to Manning Avenue
- Transit service continues via bus in I-94 bus shoulders extended as part of the TSM alternative, and existing general purpose lanes to Hudson, Wisconsin.

### 5.2.5.2 Alignment Description for Alternative 5

This section describes the Alternative 5 alignment. Detailed plan and critical profile drawings are included in the *Final Detailed Definition of Alternatives Report*. The LRT guideway:

- Runs east from the Union Depot in downtown St. Paul on Kellogg Boulevard, turns southeast onto Mounds Boulevard, then transitions into right of way located between local streets and the north side of I-94.
- East of the I-94/ Johnson Parkway interchange, extends north at grade to cross Etna Street, following the ramps back south to the north side of I-94.
- At White Bear Avenue, Ruth Street, McKnight Avenue and Century Avenue, the route again follows the interchange ramps to cross at grade and returns to its adjacent location on the north side of I-94.



- Runs adjacent to Hudson Road, past the Sun Ray Shopping Center and 3M headquarters, until extending north to 4th Street North to overpass I-694 in Oakdale.
- Crosses southeast through the Crossroads/Oaks Business Park and enters the median of I-94 east of the I-494/I-694 interchange.
- Remains in the median of I-94 until Manning Avenue, where the guideway leaves the median and terminates at the Manning Avenue park and ride station.
- At the Manning station, riders transfer to an express bus, continuing on the same frequency to the Hudson-Carmichael park and ride facility, using bus shoulder lanes and general purpose lanes across the St. Croix River Bridge.
- Consistent with the improvements identified in the TSM alternative, express buses would operate in general purpose lanes on I-94 between Manning Avenue and Eau Claire.

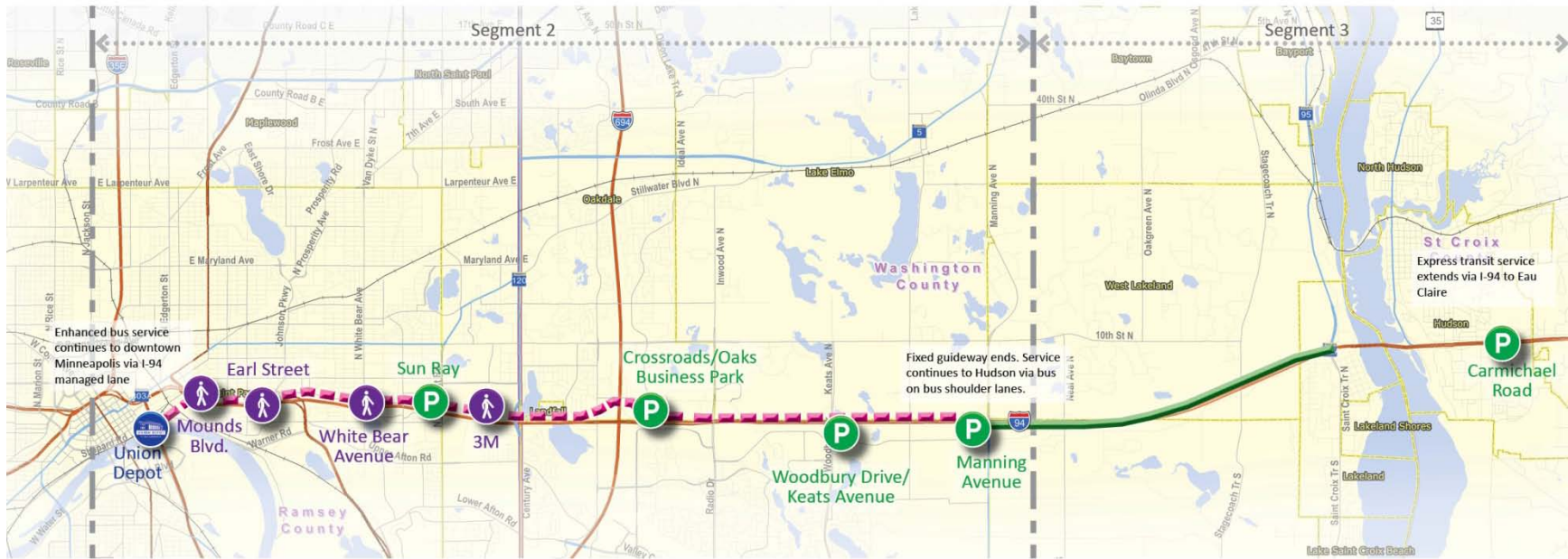
Alternative 5 includes sections where LRT runs between the existing frontage road and I-94, and where the LRT runs in the center of I-94. Typical cross-sections reflecting both conditions are included in the *Final Detailed Definition of Alternatives Report*.

#### 5.2.5.3 Alternative 5 Operating Plan






- All No Build service changes
- Proposed Routes:
  - Route 397 Manning Ave-St. Paul LRT: station-to-station service between Manning Avenue park and ride and Union Depot in St. Paul.
  - A high frequency Hudson Shuttle bus service connecting the LRT service at Manning Avenue station with the Hudson-Carmichael park and ride facility.
    - At Union Depot Route 397 commuters would connect with Central Corridor LRT or existing express bus routes to continue into Minneapolis.
  - Five new feeder routes connecting to LRT stations:
    - Stillwater (connects at Manning Avenue Station)
    - Oakdale East (connects at Sun Ray Station)
    - Oakdale West (connects at Sun Ray Station)
    - Woodbury East (connects at Oaks Business Park Station)
    - Woodbury West (connects at Sun Ray Station)
  - Route W-100: Eau Claire-Minneapolis (from TSM Alternative)
    - Four park and ride stops: Hudson/Carmichael Road; Baldwin/Highway 63; Menomonie/Highway 25; Eau Claire/Highway 12. From Hudson/Carmichael Road the route will express to downtown St. Paul on I-94 and then downtown Minneapolis.
    - Peak period weekday service includes 5 westbound trips in am peak and 5 eastbound trips in pm peak.
    - Off-peak weekday service includes 4 midday trips (every 90 minutes) between 10:00 am and 2:30 pm.


As noted previously, Table 5-3 incorporates proposed transit service for Alternative 5.

FIGURE 5-5  
Alternative 5: Hudson Road/I-94



Legend:

-  Union Depot Station
-  Park and Ride Transit Station
-  Walk up Transit Stop
-  Alternative 5 - LRT
-  Bus Shoulder Lane



Alternative 5: LRT - Hudson Road/ I-94  
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#### 5.2.5.4 Alternative 5 Stations

Route 397 walk-up station stops would be located at:

- Union Depot, downtown St. Paul
- Metro State/Mounds Boulevard, St. Paul
- Earl Street, St. Paul
- White Bear Avenue, St. Paul
- 3M Campus, Maplewood

Route 397 station stops with park and ride facilities would be located in the vicinity of:

- Sun Ray Shopping Center, St. Paul
- Crossroads/Oaks Business Park, Oakdale
- Woodbury Drive/Keats Ave (County Road 19), Woodbury/Lake Elmo
- Manning Ave (County Road 15), Woodbury/Lake Elmo

W-100 park and ride connections would be located at:

- Carmichael Road, Hudson
- Highway 63, Baldwin
- Highway 25, Menomonie
- Highway 12, Eau Claire

### 5.2.6 Alternative 6: East 7th Street/White Bear Avenue/Hudson Road LRT

#### 5.2.6.1 Alternative 6 Overview

Alternative 6 also provides an exclusive, double-track LRT guideway. Similar to BRT Alternative 4, Alternative 6 provides more localized access to corridor communities in the urbanized areas of the corridor east of downtown St. Paul and through Maplewood, Oakdale and Woodbury. Alternative 6 provides 15 stations and is illustrated in Figure 5-6. Alternative 6 includes the following improvements:

- All service and facility elements of the No Build (Alternative 1) and TSM (Alternative 2) (see Sections 5.3.1.2 and 5.3.2.2)
- Double-track LRT along I-94 from St. Paul to Manning Avenue
- Transit service continues via bus in I-94 bus shoulders extended as part of the TSM alternative, and existing general purpose lanes to Hudson, Wisconsin.
- TSM bus service from Eau Claire, Wisconsin, continues through Alternative 6.

#### 5.2.6.2 Alignment Description for Alternative 6

This section provides details of the Alternative 6 alignment. Detailed plan and critical profile drawings are included in Appendix B. The bullets below provide a written summary of this alignment. The LRT guideway:

- Begins at Union Depot and extends east using Kellogg Boulevard and then northbound Mounds Boulevard.
- Turns northeast and following East 7th Street.
- Turns south at White Bear Avenue before turning east into the area between Old Hudson Road and I-94.



- Continues east through St. Paul, Maplewood, Oakdale and Woodbury along the north frontage road past the Sun Ray Shopping Center and 3M headquarters, until extending north to 4th Street North to overpass I-694 in Oakdale.
- Crosses over I-94 to the south frontage road (Old Hudson Road), where the fixed guideway alignment terminates at the Manning area station.
- Buses would continue on the same frequency to the Hudson-Carmichael park and ride, using bus shoulder lanes and general purpose lanes across the St. Croix River Bridge.

Consistent with the improvements identified in the TSM alternative, express buses would operate in general purpose lanes on I-94 between Hudson and Eau Claire.

#### 5.2.6.3 Alternative 6 Operating Plan

- All No Build service changes
- Proposed Routes:
  - Route 397 Manning Avenue-St. Paul LRT: station-to-station service between Manning Avenue park and ride and Union Depot in St. Paul
  - A high frequency Hudson Shuttle bus service connecting the LRT service at Manning Avenue station with the Hudson-Carmichael park and ride facility.
    - At Union Depot Route 397 commuters would connect with Central Corridor LRT or existing express bus routes to continue into Minneapolis.
  - Five new feeder routes connecting to LRT stations:
    - Stillwater (connects at Manning Avenue Station)
    - Oakdale East (connects at Sun Ray Station)
    - Oakdale West (connects at Sun Ray Station)
    - Woodbury East (connects at Oaks Business Park Station)
    - Woodbury West (connects at Sun Ray Station)
  - Route W-100: Eau Claire-Minneapolis (from TSM Alternative)
    - Four park and ride stops: Hudson/Carmichael Road; Baldwin/Highway 63; Menomonie/Highway 25; Eau Claire/Highway 12. From Hudson/Carmichael Road the route will express to downtown St. Paul on I-94 and then downtown Minneapolis.
    - Peak period weekday service includes 5 westbound trips in am peak and 4 eastbound trips in pm peak.
    - Off-peak weekday service includes 4 midday trips (every 90 minutes) between 10:00 am and 2:30 pm.

As noted previously, Table 5-3 displays proposed transit service for Alternative 6.






#### 5.2.6.4 Alternative 6 Stations


Route 397 walk-up station stops would be located at:

- Union Depot, downtown St. Paul
- E. 7<sup>th</sup> Street at Mounds Blvd/Metropolitan State University, St. Paul
- Arcade Avenue at E. 7<sup>th</sup> Street/Beacons Bluff, St. Paul
- Johnson Parkway at E. 7<sup>th</sup> Street, St. Paul

FIGURE 5-6  
Alternative 6: East 7th Street/White Bear Avenue/Hudson Road



Legend:  Union Depot Station  Park and Ride Transit Station  Walk up Transit Stop  Alternative 6 - LRT  Bus Shoulder Lane

 **Alternative 6: LRT - East 7th Street/White Bear Avenue/Hudson Road**  
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Under Alternative 6, LRT would partially operate in the center of local streets. LRT vehicles would operate within 14-foot guideway—one in each direction. General street traffic would operate in 14-foot travel lanes, adjacent to the LRT guideway and the 10-foot sidewalks on both sides of the street. Typical cross-sections are included in the *Final Detailed Definition of Alternatives Report*.



- East 7th Street at White Bear Avenue, St. Paul
- East 3rd Street at White Bear Avenue, St. Paul
- 3M Campus, Maplewood
- Greenway Avenue, Landfall

Route 397 station stops with park and ride facilities would be located in the vicinity of:

- Sun Ray Shopping Center, St. Paul
- Crossroads/Oaks Business Park, Oakdale
- Radio Drive, Woodbury
- Woodbury Drive/Keats Ave (County Road 19), Woodbury/Lake Elmo
- Manning Ave (County Road 15), Woodbury/Lake Elmo

W-100 park and ride connections would be located at:

- Carmichael Road, Hudson
- Highway 63, Baldwin
- Highway 25, Menomonie
- Highway 12, Eau Claire

The *Final Detailed Definition of Alternatives Report* includes typical cross sections illustrating how a local street would accommodate LRT vehicles as well as through traffic and left-turning vehicles.

## **5.2.7 Alternative 7: Commuter Rail**

### **5.2.7.1 Alternative 7 Overview**

Alternative 7 provides commuter rail transit service on Federal Railroad Administration (FRA)-compliant rolling stock within existing railroad corridors between the Twin Cities Metropolitan Area and Eau Claire. Alternative 7, shown in Figure 5-7, provides 6 new stations, two in Minnesota and four in Wisconsin, and includes the following improvements:

- All service and facility elements of the No Build (Alternative 1) (see Sections 5.3.1.2)
- Service and facility elements of the TSM alternative, excluding Route W-100, which would duplicate the new rail service.
- New commuter rail station-to-station service between Eau Claire and Minneapolis

### **5.2.7.2 Description of Alternative 7 Alignment**

This section provides details of the Alternative 7 alignment. Detailed plan drawings on an aerial base are included in Appendix C. The bullets below provide a written summary of this alignment:

- Beginning at the Interchange Station in downtown Minneapolis, travels in a combination of existing and new track along the Burlington Northern Santa Fe Railway (BNSF) Wayzata and Midway Subdivisions
- In the vicinity of St. Anthony Junction in Minneapolis, transitions to new track through the existing Minnesota Commercial trackage area, to connect with the Canadian Pacific Railway (CP) Merriam Park Subdivision.
- Follows the CP corridor to Union Depot in downtown St. Paul.



- At Union Depot, follows the Union Pacific Railway (UP) Altoona Subdivision in a combination of existing and new track through St. Paul, Maplewood, Oakdale, Lake Elmo, Baytown Township, and West Lakeland Township to the existing UP River Bridge across the St. Croix River to Hudson, Wisconsin.
- At Hudson, continues on the predominantly single-track railway approximately 60 miles through west central Wisconsin to its eastern terminus in the city of Eau Claire.

### 5.2.7.3 Alternative 7 Operating Plan

- All No Build service changes
- Proposed Routes:
  - Route 891 Eau Claire-St. Paul-Minneapolis commuter rail: station-to-station service between Eau Claire and Minneapolis.
    - Peak period weekday service includes 5 westbound trips in am peak and 5 eastbound trips in pm peak, consistent with projected demand and current Northstar operations.
    - Off-peak weekday service includes 2 westbound and 2 eastbound midday trips, consistent with projected demand and current Northstar operations.
    - Weekend service includes 2 westbound trips in the am and 2 eastbound trips in the pm.
    - Special event service as needed
  - One new feeder route connecting to CR stations:
    - Route 294 truncated at Manning Avenue Station (Lake Elmo/Baytown Township)
- Wisconsin service (Route W-100) is not included in this alternative because it duplicates the commuter rail service.

Table 5-4 displays proposed transit service for Alternative 7.

TABLE 5-4  
Alternative 7 Commuter Rail Operating Plan Summary

Routes	Weekday Peak Trips/Freq	Weekday Off-peak Trips/Freq	Weekday Span	Weekend Peak Trips/Freq	Weekend Off-peak Trips/Freq	Weekend Span
<b>All No Build Improvements</b>						
Route 891 CR Eau Claire - Mpls	10 trips (every 30 min)	4 trips (every 120 min)	6 am–8 pm	4 trips (every 120 min)	No Service	10 am–8 pm
Route 294 Stillwater - Manning Ave Station	10 trips (every 30 min)	No Service	6–9 am 3–6 pm	No Service	No Service	No Service

FIGURE 5-7  
Alternative 7: Commuter Rail



All commuter rail stations except the Minneapolis Interchange and Union Depot stations include park and ride facilities as part of the Gateway project. Park and ride facilities at the two terminal stations are provided by others. Gateway alternatives assume standard 25-foot spacing between the centerlines of both tracks. A railroad maintenance road is also provided on side of the right of way.

#### 5.2.7.4 Alternative 7 Stations

Route 891 stations would be located at:

- The Interchange, Minneapolis
- Union Depot, St. Paul
- Ideal Avenue, Oakdale/Lake Elmo
- Manning Avenue, Lake Elmo/Baytown Township
- County Road U, Hudson
- Hwy 63/6th Avenue, Baldwin
- Wilson Street, Menomonie
- Putnam Street, Eau Claire

### 5.2.8 Alternative 8: BRT Managed Lanes in I-94

#### 5.2.8.1 Alternative 8 Overview

Consistent with the Twin Cities region's recent implementation of managed lanes in freeways, Alternative 8 expands on the No-Build managed lane between downtown Minneapolis and downtown St. Paul. Alternative 8 would add managed lanes to I-94 between downtown St. Paul and the Highway 95 interchange just west of the St. Croix River. Management will include tolling with dynamic pricing through the most congested segments of the corridor to ensure that transit will flow at posted speeds.

A High Occupancy Toll (HOT) lane is a road pricing concept where solo drivers in single occupant (or private) vehicles can use high occupancy vehicle (HOV) lanes for a fee. In Minnesota this system is called MnPASS. Center HOT lanes, with Information Technology Systems (ITS) infrastructure incorporated into overhead real-time signage to control the use of the lane. MnPASS lanes use variable ("dynamic") pricing tied directly to real-time congestion levels. MnPASS lanes are actively managed and electronically signed via the MnDOT Regional Traffic Management Center north of St. Paul.

Tolls would be collected by an electronic toll collection system similar to the current MnPASS system that is implemented on other interstates in the region. Tolls would increase in response to rising traffic demand to ensure that buses continue to travel at posted speeds, thereby maintaining high transit levels of service.

Alternative 8 includes the following improvements:

- All service and facility elements of the No Build (Alternative 1) and TSM (Alternative 2)
- A new, center, managed lane and includes 6 online stations between downtown St. Paul and the Highway 95 interchange in Lakeland, and 4 park and ride stations in Wisconsin. This alternative does not take an existing traffic lane from I-94.

Figure 5-8 below illustrates the BRT Managed Lane alternative.

#### 5.2.8.2 Description of Alternative 8 Alignment

Alternative 8 would implement a managed lane in the center of I-94, from Highway 95 in Lakeland to a connection to the proposed managed lane between downtown St. Paul and downtown Minneapolis, a component of the 2030 Transportation Policy Plan and therefore the No Build alternative.

- Gateway Corridor buses would travel in the center, BRT managed lanes between Minneapolis and the Highway 95 interchange in Lakeland, just west of the St. Croix River Bridge.

- Between the river bridge and the Hudson area station, buses would use general purpose lanes and transition to bus shoulders during congested periods.
- Peak period buses using the BRT Managed Lane would be routed to Union Depot first, then on to 6<sup>th</sup> Street and Cedar Avenue, for consistency with other build alternative operating plans.
- Consistent with the improvements identified in the TSM alternative, express buses would operate in general purpose lanes on I-94 between Hudson and Eau Claire, Wisconsin.

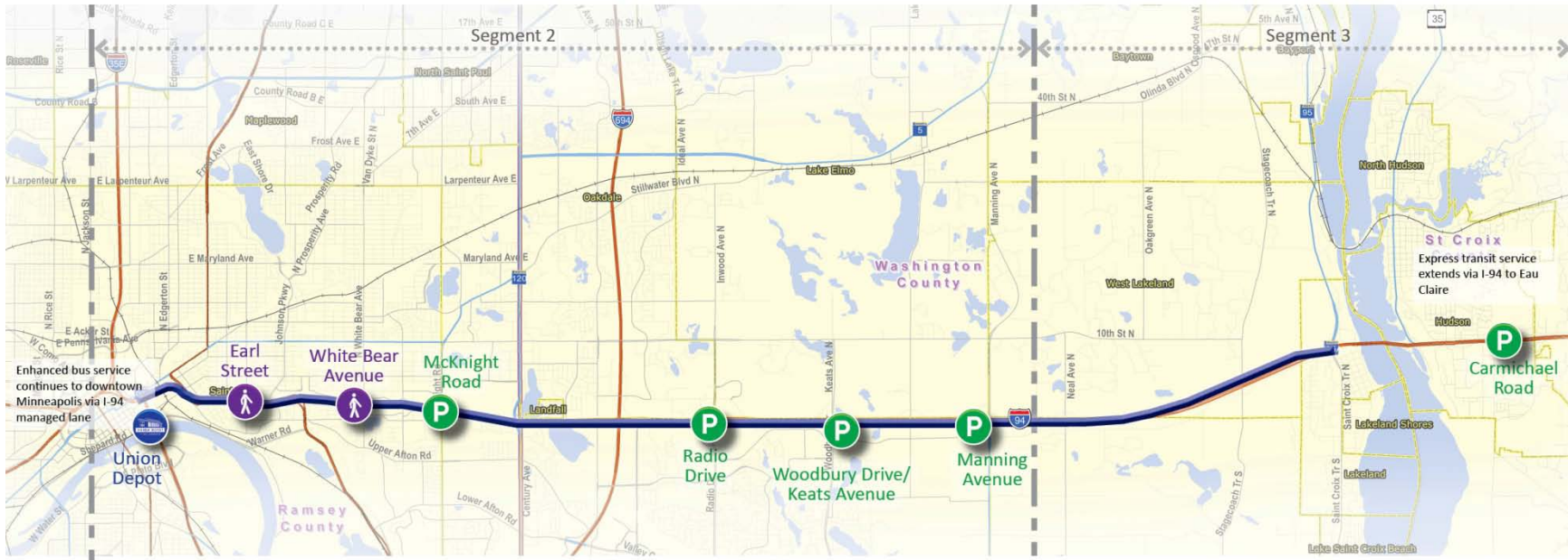
Design options have been discussed with the Federal Highway Administration and MnDOT. Figure 5-8 illustrates Alternative 8.

### 5.2.8.3 Alternative 8 Operating Plan





- All No Build service changes
  - All No Build-based express routes would use managed lanes between Manning Avenue and St. Paul
- Proposed Routes:
  - Route 395 Hudson-St. Paul: station-to-station service between Hudson-Carmichael park and ride and St. Paul (6<sup>th</sup> Street and Cedar Avenue) (from TSM Alternative)
    - At Union Depot, Route 395 commuters would connect with Central Corridor LRT to continue into Minneapolis.
  - Route W-100: Eau Claire-Minneapolis (from TSM Alternative)
    - Four park and ride stops: Hudson/Carmichael Road; Baldwin/Highway 63; Menomonie/Highway 25; Eau Claire/Highway 12. From Hudson/Carmichael Road the route will express to downtown St. Paul on I-94 and then downtown Minneapolis.
    - Peak period weekday service includes 5 westbound trips in am peak and 5 eastbound trips in pm peak.
    - Off-peak weekday service includes 2 westbound and 2 east bound midday trips between 10:00 am and 2:30 pm.
  - Five new feeder routes connecting to LRT stations:
    - Stillwater (connects at Manning Avenue Station)
    - Oakdale East (connects at McKnight Station)
    - Oakdale West (connects at McKnight Station)
    - Woodbury East (connects at Radio Drive Station)
    - Woodbury West (connects at McKnight Station)


Table 5-5 displays proposed transit service for Alternative 8.

FIGURE 5-8  
Alternative 8: BRT Managed Lane



Legend:

-  Union Depot Station
-  Park and Ride Transit Station
-  Walk up Transit Stop
-  Alternative 8 - BRT Managed Lane


**Alternative 8: BRT - Managed Lane**  
 October 4, 2012  
 CH2MHILL Team

Gateway Corridor Alternatives Analysis



TABLE 5-5  
Alternative 8 BRT Managed Lane Operating Plan Summary

Routes	Peak Freq/Trips	Off-peak Freq/Trips	Weekday Span	Weekend Peak Freq/Trips	Weekend Off-peak Freq/Trips	Weekend Span
<b>All No Build Improvements</b>						
Route 395 Hudson—St. Paul	10 min	15 min	6 am - Midnight	30 min	30 min	6 am - Midnight
Woodbury West Feeder	30 min	No Service	6–9 am 4–6 pm	No Service	No Service	No Service
Woodbury East Feeder	30 min	No Service	6–9 am 4–6 pm	No Service	No Service	No Service
Oakdale West Feeder	30 min	No Service	6–9 am 4–6 pm	No Service	No Service	No Service
Oakdale East Feeder	30 min	No Service	6–9 am 4–6 pm	No Service	No Service	No Service
Stillwater Feeder	30 min	No Service	6–9 am 4–6 pm	No Service	No Service	No Service
W-100 Eau Claire—St. Paul—Mpls	10 trips (every 30 min)	4 trips (every 90 min)	6 am–7 pm	No Service	No Service	No Service

#### 5.2.8.4 Alternative 8 Stations

Alternative 8 includes seven online stations. Online stations would be constructed in the center of the I-94 freeway, with station access provided by enclosed vertical circulation facilities from street overpasses.

Route 395 walk-up stops and stations would be located at:

- 6<sup>th</sup> Street & Cedar Avenue stop, downtown St. Paul
- Union Depot, downtown St. Paul
- Earl Street, St. Paul
- White Bear Avenue, St. Paul

Route 395 station stops with park and ride facilities would be located at:

- McKnight Road, St. Paul
- Radio Drive, Woodbury
- Woodbury Drive/Keats Ave (County Road 19), Woodbury/Lake Elmo
- Manning Ave (County Road 15), Woodbury/Lake Elmo
- Carmichael Road, Hudson

W-100 park and ride connections would be located at:

- Carmichael Road, Hudson
- Highway 63, Baldwin
- Highway 25, Menomonie
- Highway 12, Eau Claire

## 6. Evaluation of Alternatives

### 6.1 Overview of Evaluation Process

This section describes the process used to evaluate the alternatives and documents the results of the technical evaluation. Detailed information on the evaluation of alternatives is provided a variety of technical methodology reports or memoranda that are referenced herein. Evaluation results are summarized in this section. Complete results are available in Appendix A.

The purpose of the evaluation was to identify the benefits, costs and impacts of each alternative in order to identify those alternatives most likely to meet the Gateway Corridor's purpose and achieve the goals of the project.

#### 6.1.1 Project Goals

The Gateway Corridor Commission and the project Advisory Committees identified and approved a complete slate of goals, objectives and evaluation criteria to use in comparing the performance of alternatives (see Section 3.3). These goals were developed to help define, analyze and evaluate transit alternatives for the corridor. The goals are:

- Goal 1: Improve mobility
- Goal 2: Provide a cost-effective, economically viable transit option
- Goal 3: Support economic development
- Goal 4: Protect the natural environmental features of the corridor
- Goal 5: Preserve and protect individual community quality of life
- Goal 6: Improve safety

#### 6.1.2 Evaluation Process

Because several alternatives share the same general geographic area, it was anticipated that the evaluation analysis would yield the same or similar results for several potential impact categories, effectively removing those criteria as differentiators in comparing the alternatives. Therefore, a two-tiered evaluation approach was used. All alternatives were initially evaluated based on criteria for all goals and objectives. A second review was completed focusing on Goal 1 – Improve mobility, Goal 2 – Provide a cost-effective, economically viable transit option. These criteria are considered Tier 1 indicators. All other criteria are considered Tier 2 indicators. This two-tiered approach provided the advisory committees and the Gateway Corridor Commission information on the performance of all alternatives under all goals while highlighting those factors that provide differentiation among the alternatives.

#### 6.1.3 FTA New Starts Requirements

Transitway projects requesting FTA New Starts funds must follow the agency's guidelines and evaluation process. The Gateway Corridor AA evaluation criteria were developed to be consistent and compliant with the requirements and guidelines of the FTA New Starts guidelines and requirements.

#### 6.1.4 Consistency with NEPA Requirements

While the AA is technically outside the National Environmental Policy Act (NEPA) process, the next phase of study for the Gateway Corridor will include environmental documentation that will be subject to NEPA requirements. The evaluation process used in the AA and documented here is intended to position the Gateway Corridor to seamlessly enter into the next phase of the study. The *Environmental and Community Impact Assessment Technical Methodology Report* (August 2011) provides complete details on this topic.

### 6.1.5 Evaluation Criteria

Both quantitative and qualitative data were developed for all of the transitway alternatives. The technical memo titled, *Measurements for Evaluating Alternative Performance against Corridor Goals and Objectives* (February 2012), documents the specific measures that were used to evaluate the performance of the alternatives related to corridor goals and objectives, which are summarized in Table 6-1.

### 6.1.6 Rating of Alternatives

The measures identified in Table 6-1 were used in combination to determine if individual Gateway Corridor alternatives strongly support, support, or do not support specific project goals and objectives. The raw data was translated into ratings indicating how well each alternative addressed the Gateway Corridor goals and objectives.

TABLE 6-1  
Evaluation Measures

Goal	Evaluation Measures	
Improve Mobility	People Served	2030 population and employment within ½ mile of stations
		Number of zero car households within ½ mile of stations
		2030 zero car household user benefits per passenger hour
	Transit Ridership	Number of transit trips on Gateway Corridor transitway
		Number of new transit trips
Number of total corridor-wide transit trips		
Travel Time Savings	Performance against regional guidelines	
	Travel times during the morning peak hour compared to single occupant vehicle and express bus service	
	Savings in regional Vehicle Hours Travelled (VHT)	
Transit Accessibility	Number of locations at which local bus would be available, providing connections to regional transit service	Number of stations at which local bus would be accessible
		Number of non-peak transit trips provided on Gateway corridor alternatives in 2030
	Direct connections to major regional transit hubs	
	Access to existing trails, bikeways, sidewalks and other pedestrian/bike amenities as well as planned regional and local trails	
	Traffic Impacts	Level of Service on I-94 mainline and on the I-94 St. Croix River bridge
Changes in local street accessibility (including intersection restrictions, lane reductions and traffic diversions)		
Provide a Cost-Effective, Economically	Cost	Capital cost
		Annual operating and maintenance costs

TABLE 6-1  
Evaluation Measures

Goal	Evaluation Measures	
Viable Transit Option	Cost-Effectiveness Measures	Passengers per service hour Operating costs per passenger mile Cost Effectiveness Index (CEI) – Incremental cost per hour of transportation system user benefit Availability to other modes of transportation at stations including regional transit, local transit, pedestrian, bicycle, auto drop-off, and park and ride.
Support Economic Development	People Served	2010 population and employment within ½ mile of stations
	Land Use Plans	Consistency with adopted economic development plans (including economic development chapters of local, regional and state comprehensive plans) Existence of adopted transit supportive land use plans and policies
	Development Potential	Station- area development potential (based on number of stations, location of stations, and 2030 population and employment within ½ mile of stations)
Protect the Natural Environmental Features of the Corridor	Potential Environmental Impacts	Number of acres of wetland, water body, floodplain and parkland within 125' of centerline of alternative Air quality impacts - change in Vehicle Miles Travelled (VMT) Number of potentially environmentally sensitive areas within 125' of centerline of alternative (historic district, wild and scenic river, and/or national river and recreation area)
	Sustainability	Number of stations that meet LEED 2009 rating of “location efficiency”
Preserve and Protect Individual Community Quality of Life	Consistency with Plans	Consistency with local comprehensive plans Consistency with Metropolitan Council’s Regional Blueprint and 2030 Transit Plan
	Potential Community Impacts	Estimated number of full and partial parcel acquisitions Sensitive land uses (residential units) affected by noise and/or vibration within 500' of centerline of alternative Traffic impacts Number of community facilities within ½ mile of proposed stations Improvements in transit rider experience over existing express bus service
Improve Safety	Potential Safety Impacts	Number of high crash locations within ¼ mile of transit stations Number of new at-grade street crossings Number of ungated, at-grade street crossings Potential for crossing at locations without pedestrian/bicycle provisions

## 6.2 Goal 1: Improve Mobility

Mobility impacts were evaluated based on the number of people served (residents, jobs and transit-dependent people), increases in ridership, improvements in transit service and accessibility, and traffic impacts. Transit ridership, travel time impacts and regional mobility

benefits were evaluated using the regional travel forecasting model (see *Travel Demand Forecast Technical Methodologies Report* (August 2012)). Traffic impacts were evaluated using a variety of traffic analysis tools. The methodologies used are documented in *Traffic Analysis Technical Methodology and Results Report* (August 2012). The results of the technical analyses for each of these factors are described in this section of the report.

### 6.2.1 People Served

The number of people projected to live within one-half mile of the proposed stations in 2030 (see Table 6-2) ranges from 5,700 for Alternative 7 (Commuter Rail) to 47,300 for Alternatives 4 and 6 (BRT and LRT on East 7<sup>th</sup> Street/White Bear Avenue and Hudson Road). The number of jobs projected within one-half mile of the proposed stations in 2030 ranges from 4,600 for Alternative 7 to 29,700 for Alternatives 4 and 6. These numbers are heavily influenced by the current concentrations of population and employment as well as the number of stations proposed for each alternative.

TABLE 6-2  
People Served by Transit Alternatives

Alternative	2030 Population within ½ Mile of Stations	2030 Employment within ½ Mile of Stations	Transit Dependent Population within ½ Mile of Stations (Zero Car Households)
1—No Build	13,800	5,900	160
2—Transportation System Management	16,000	12,500	170
3—BRT—Hudson Rd/I-94	28,100	19,900	300
4—BRT along E 7th St/White Bear Ave/Hudson Rd	47,300	29,700	560
5—LRT—Hudson Rd/I-94	28,100	19,900	310
6—LRT along E 7th St/White Bear Ave/Hudson Rd	47,300	29,700	560
7—Commuter Rail	5,700	4,600	70
8—BRT Managed Lane on I-94	21,600	14,000	240

### 6.2.2 Service to Transit Dependent Populations

Transit-dependent populations are people who live without an automobile. These may include people who are low income, elderly or young, persons with disabilities or individuals who choose to live without an automobile. In this project, transit-dependency was measured based on the number of households within one-half mile of proposed stations with zero cars (see Table 6-2). Alternatives 4 and 6 (BRT and LRT along East 7<sup>th</sup> Street, White Bear Avenue and Hudson Road) would serve the highest number of people living without an automobile.

### 6.2.3 Transit Ridership Forecasts

The Twin Cities regional travel forecasting model was used to develop travel demand forecasts for the Gateway Corridor alternatives (see *Travel Demand Forecast Technical Methodologies Report* (August 2012)). For Gateway, the regional model was modified to include Eau Claire, Chippewa, Dunn and Pepin counties in Wisconsin and to include the Northstar commuter rail line.

### 6.2.3.1 Ridership on the Proposed Transitway Alternatives

Ridership on the proposed transitway alternatives includes only those riders using the fixed guideway route operating on the transitway – that is, riders on the LRT, BRT or Commuter Rail line. Projected 2030 daily weekday boardings on the fixed guideway route for each alternative is shown in Table 6-3 below.

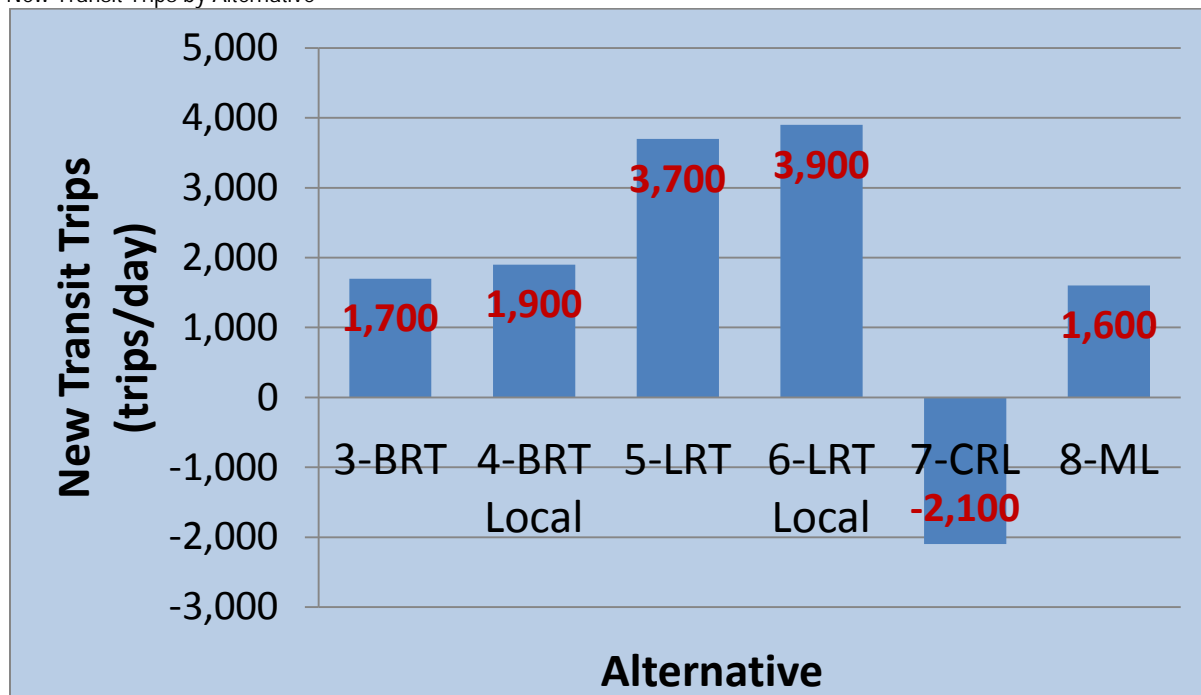
TABLE 6-3  
Weekday Boardings on Fixed Guideway Routes

Alternative	Weekday Boardings on Signature Route (Transitway)
1—No Build	N/A
2—Transportation System Management	3,000
3—BRT—Hudson Rd/I-94	5,400
4—BRT—E 7th St/White Bear Ave/Hudson Rd	5,800
5—LRT—Hudson Rd/I-94	9,200
6—LRT—E 7th St/White Bear Ave/Hudson Rd	10,400
7—Commuter Rail	1,400
8—BRT Managed Lane on I-94	4,700

### 6.2.3.2 New Transit Riders

Figure 6-1 shows the new transit trips for each build alternative, relative to Alternative 2, the Transportation System Management (TSM) alternative.

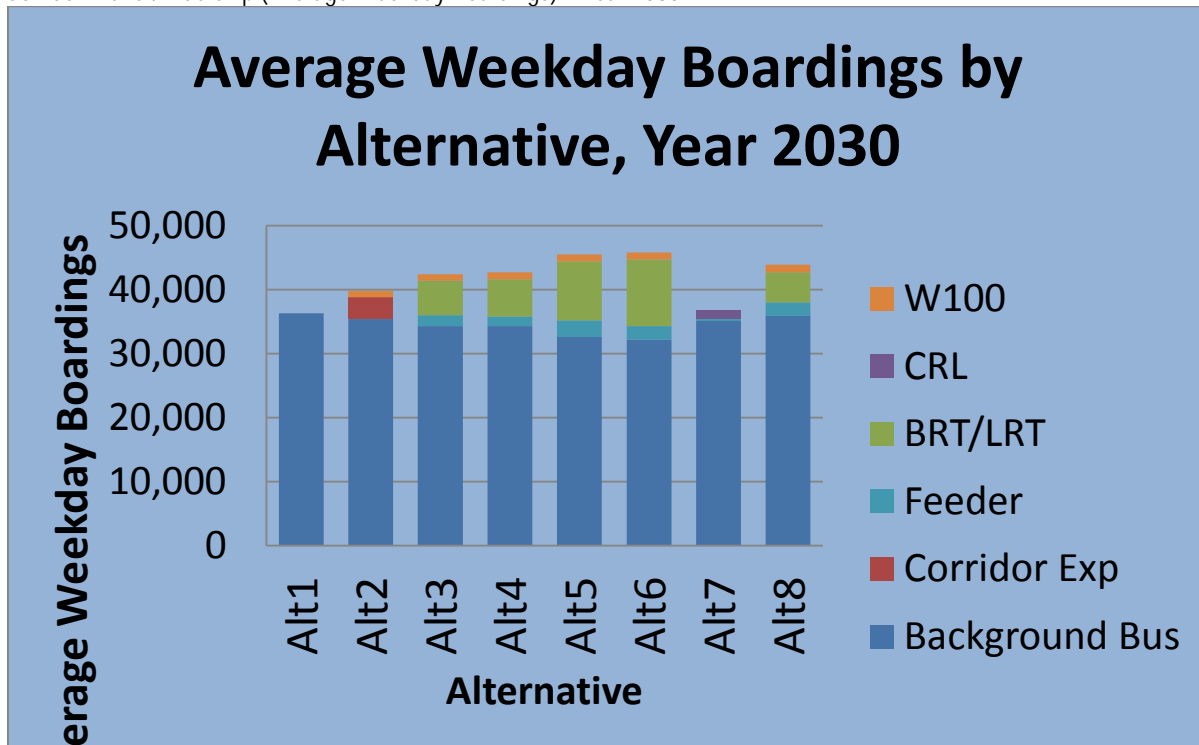
FIGURE 6-1  
New Transit Trips by Alternative



### 6.2.3.3 Total Corridor Ridership

Total corridor ridership includes all transit ridership in the corridor on an average weekday including background bus ridership in the corridor, express buses, feeder buses, the proposed transitway ridership, and long-distance bus ridership between Eau Claire and the Twin Cities (Route W100). Total projected corridor ridership for each of the alternatives is shown in Figure 6-2. Total corridor ridership ranges from 36,300 daily weekday boardings for No Build to over 45,000 daily boardings for Alternatives 5 and 6 (LRT). These numbers include all transit service in the corridor.

FIGURE 6-2  
Corridor Transit Ridership (Average Weekday Boardings)—Year 2030

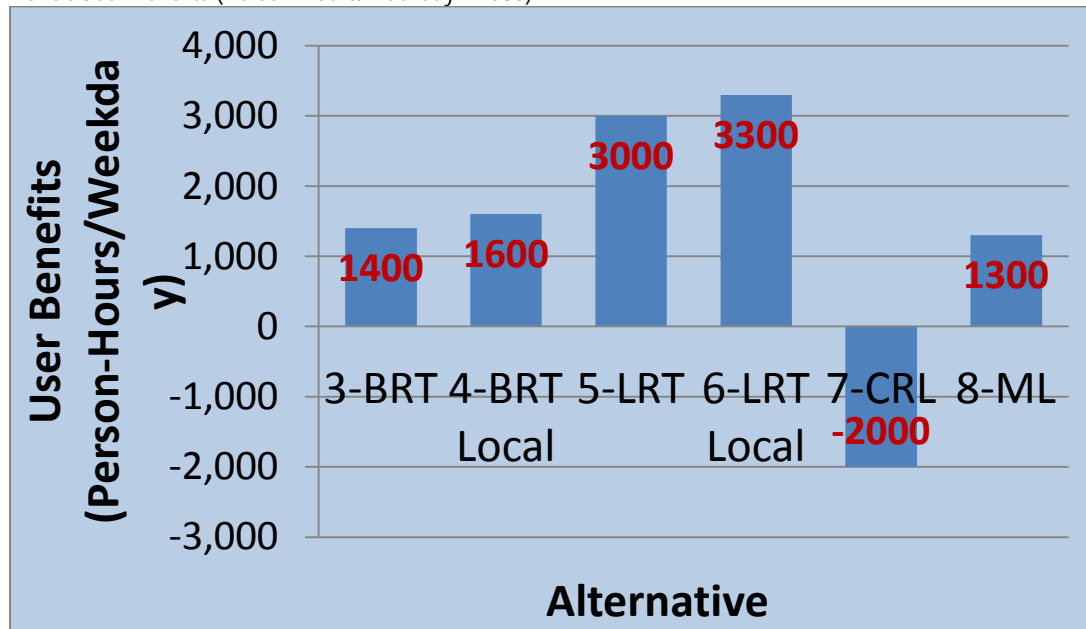


### 6.2.4 Travel Time Savings

#### 6.2.4.1 User Benefits

Figure 6-3 shows the daily user benefits, a measure of travel time savings used in the FTA cost effectiveness calculation, for each alternative compared to the TSM alternative. The pattern is similar to that of new transit riders. Transit dependent user benefits are defined as the travel time savings generated by each alternative that accrue to people living without an automobile. Alternatives 2 through 6 would provide the highest level of transit dependent user benefits per total passenger hours; Alternative 8 would provide moderate transit dependent user benefits while Alternative 7 would provide negative benefits (that is, there is an *increase* rather than a decrease in travel times).

FIGURE 6-3  
Transit User Benefits (Person-Hours/Weekday—2030)



#### 6.2.4.2 Reduction in Vehicle Hours Traveled

The FTA cost-effective model also measures the overall regional savings in travel time as the change in average daily vehicle hours traveled relative to the No Build alternative. All alternatives had at least a 1 percent savings in regional vehicles hours traveled (VHT) relative to the No Build alternative.

#### 6.2.4.3 Transit Travel Times Compared to Auto and Express Bus

The Twin Cities regional guideline for express bus service or commuter rail service is to provide service that is “not less than 35 percent slower than auto.” The regional guideline for LRT and station-to-station Highway BRT is to provide service that is “at least 20 percent faster than local bus.” However, within the Gateway Corridor study area, there is no local bus service that can be directly compared to service in the I-94 corridor. All buses using the I-94 corridor function as express buses. Therefore, the metric of “not less than 35% slower than auto” was used to evaluate all Gateway Corridor alternatives. The estimated morning peak hour travel time of each alternative was compared to a single occupant vehicle and to express bus service for trips between:

- Segment 1: Travel times between Union Depot and Interchange transit hubs
- Segment 2: Travel times between Oaks Business Park/Guardian Angels park and ride and downtown Minneapolis and downtown St. Paul
- Segment 3: Travel times between Carmichael Road and downtown Minneapolis and downtown St. Paul
- Segment 4: Travel times between Eau Claire and downtown Minneapolis and downtown St. Paul

Given these parameters, Alternatives 3, 5 and 8 rank highest while Alternatives 4, 6, and 7 are less favorable.



### 6.2.5 Transit Accessibility

The evaluation of alternatives related to impacts on transit accessibility included the following factors:

- Number of locations where local bus service would be available
- Number of locations where connections are available to regional transit service
- Connections to the major regional multi-modal hubs at Union Depot in St. Paul and the Interchange in Minneapolis. These hubs provide access to existing and planned regional transitways including Bottineau, Central, Hiawatha, Northstar, Red Rock, Rush Line, and Southwest.
- Reliability of all day transit service, defined as the number of non-peak transit trips provided by each alternative.
- Pedestrian and bicycle access to transit, defined as access to existing trails, bikeways, sidewalks or other pedestrian/bike amenities as well as planned regional and local trails.

Under this measure, only Alternative 7 Commuter Rail does not support one or more goals.

### 6.2.6 Traffic Impacts

The traffic analysis provides a planning level estimate of the quality of traffic operations and potential impacts. Potential traffic impacts vary according to traffic volumes, available right-of-way, number of access locations and the type of traffic control. Traffic analysis was completed for existing conditions (year 2011) and 20-year forecasted conditions (year 2031). Additional information on traffic analysis methodologies and results can be found in *Traffic Analysis Technical Methodology and Results Report* (August 2012).

#### 6.2.6.1 Impacts on Level of Service on Arterial Roadways

In general, under Alternatives 4 and 6, the LOS on arterial streets within the City of St. Paul drops below acceptable (LOS D). Specifically, the roadway geometry of Kellogg Boulevard, and portions of East 7<sup>th</sup> Street and White Bear Avenue, would be reduced from four-lane undivided to two-lane undivided with turn lanes under Alternatives 4 and 6. The reduction in geometry reduces traffic operations to LOS F on these segments. In other areas and for other alternatives, the projected level of service on arterial segments either does not change under Gateway alternative implementation, or drops but is still projected at acceptable levels.

#### 6.2.6.2 Impacts on Level of Service on I-94

Generally, implementation of build alternatives would not result in a change in LOS on I-94. The segment of I-94 between Manning Avenue and Woodbury Drive/Keats Avenue in Woodbury/Lake Elmo is an exception. The LOS in this segment, under Alternative 8, BRT Managed Lane, improves from F to D between Manning Avenue and Woodbury Drive/Keats Avenue in Woodbury/Lake Elmo.

#### 6.2.6.3 Impacts on On-Street Parking

It is estimated that approximately 70 parking spaces would need to be removed to implement Alternatives 3 (BRT along I-94) and 5 (LRT along I-94). Approximately 870 on-street parking spaces would need to be removed to implement Alternatives 4 (BRT along 7<sup>th</sup> St, White Bear Ave and Hudson Road) and 6 (LRT along East 7<sup>th</sup> Street, White Bear Avenue and Hudson Road). No parking spaces would be removed for the other alternatives.

#### 6.2.6.4 Changes in Access along Arterial Streets

Alternatives 4 and 6 would result in high levels of traffic impacts—a direct result of reduced capacity which would lead traffic to divert onto other neighborhood streets. Other alternatives would result in low or moderate traffic impacts.

### 6.2.7 Overall Evaluation Related to Goal 1: Improve Mobility

Several criteria were evaluated related to the goal of improving mobility. Of the full range of criteria used to evaluate the goal of improving mobility, three were determined to demonstrate significant differences among the alternatives and were, therefore, considered “key differentiators”. These factors are:

- Transitway trips per day – Alternative 6 (LRT on E 7<sup>th</sup> St/White Bear Ave/Hudson Rd) performed best under this criterion with over 10,000 trips per day. Alternative 7 (Commuter Rail) and Alternative 8 (BRT Managed Lane) had the least number of trips – less than 5,000 per day.
- Traffic impacts – Alternatives 4 and 6 (BRT and LRT on E 7<sup>th</sup> St/White Bear Ave/Hudson Rd) had significantly greater traffic impacts than the other alternatives.
- Transit travel times – Alternatives 4 and 6 (BRT and LRT on E 7<sup>th</sup> St/White Bear Ave/Hudson Rd) did not meet the regional guidelines for transit travel times.

## 6.3 Goal 2: Provide a Cost-Effective, Economically Viable Transit Option

This section summarizes the estimated capital and operating/maintenance (O&M) costs for each of the proposed alternatives, and describes the measures used to identify the cost-effectiveness of the transit alternatives.

### 6.3.1 Capital Costs

Capital cost estimates identify the one-time expenditure to build the system. This typically includes guideway, tracks, lanes, stations, structures, signalization and communications systems, operations and maintenance facilities, vehicles, and right-of-way acquisition. Also included are “soft costs” for items such as engineering, construction services, insurance, and owner’s costs, as well as contingencies for uncertainty in both the estimating process and the scope of the project. Capital cost estimates were prepared using the format and procedures required by the FTA. Costs were estimated in both current (2012) and mid-year of construction (2019) dollars.

At this planning stage of project development for the Gateway Corridor, there is not sufficient definition or detail to prepare true construction cost estimates for alternatives under consideration. Rather, the capital cost estimates were developed using representative typical unit costs or allowances on a per unit basis that is consistent with the level of alternatives definition. The capital cost estimates developed during this AA will be refined based upon additional design development work during future phases of study.

Capital costs for the build alternatives in 2012 dollars range from \$49 million for the TSM alternative to just over \$1 billion for Alternative 6 (LRT along East 7<sup>th</sup> Street, White Bear Avenue and Hudson Road). Both 2012 and 2019 costs are shown in Table 6-4.

### 6.3.2 Operating and Maintenance Costs

Estimates of operating and maintenance (O&M) costs are an important part of FTA’s New Starts planning projects. Annual O&M costs consist of ongoing costs to operate and maintain each Gateway Corridor alternative, including operating, maintaining, and managing a transit system. These costs typically consist of:

- Labor costs
- Fuel and electricity
- Parts and materials
- Non-labor operating costs to maintain support facilities (stations, bus stops, transit centers, maintenance facilities, etc.)
- Administrative costs, including labor, supplies, building operating, communications, etc.
- Insurance

O&M costs for each alternative are compared against the No Build system to determine each alternative’s relative costs and benefits. Estimated O&M costs for each of the alternatives for both 2020 (start up year) and 2030 are shown in Table 6-4. Annual 2020 O&M costs range from \$5.8 million for the TSM alternative to \$33 million for Alternative 7, Commuter Rail.

TABLE 6-4  
Estimated Capital, Operating & Maintenance Costs for Alternatives

Alternative	Capital Cost		Annual O&M Cost	
	2012 (millions)	2019 (millions)	2020 (millions)*	2030 (millions)*
1—No Build	N/A	N/A	N/A	N/A
2—Transportation System Management	\$49	\$62	\$5.8	\$13.3
3—BRT—Hudson Rd/I-94	\$328	\$417	\$11.5	\$23.6
4—BRT—E 7th St/White Bear Ave/Hudson Rd	\$385	\$490	\$13.0	\$26.7
5—LRT—Hudson Rd/I-94	\$769	\$979	\$16.0	\$28.1
6—LRT- E 7th St/White Bear Ave/Hudson Rd	\$1,006	\$1,279	\$21.0	\$35.4
7 —Commuter Rail	\$965	\$1,227	\$33.0	\$53.0
8—BRT Managed Lane on I-94	\$461	\$587	\$10.8	\$21.9

\*In excess of No Build

### 6.3.3 Measures of Cost-Effectiveness

Three measures of cost-effectiveness were utilized to evaluate the overall benefit-cost performance of the Gateway Corridor alternatives. These include:

- Passengers per in-service hour relative to regional guidelines
- Operating cost per passenger mile
- Cost-Effectiveness Index (CEI), defined as the incremental cost per hour of transportation system user benefit.

The results of these performance indicators are shown in Table 6-5.

TABLE 6-5  
Criteria for Evaluating Cost-Effectiveness of Alternatives

Alternative	Passengers Per In-Service Hour	Operating Cost Per Passenger Mile	CEI
1—No Build	N/A	N/A	N/A
2—Transportation System Management	N/A	\$0.08	N/A
3—BRT - Hudson Rd/I-94	46	\$0.16.	\$86.5
4—BRT –E 7th St/White Bear Ave/Hudson Rd	38	\$0.17	\$79.3
5—LRT- Hudson Rd/I-94	155	\$0.19	\$96.6
6—LRT- E 7th St/White Bear Ave/Hudson Rd	113	\$0.25	\$97.6
7—Commuter Rail	133	\$0.40	-\$141.3
8— BRT Managed Lane on I-94	60	\$0.13	\$112.9

### 6.3.4 Overall Evaluation Related to Goal 2: Provide Cost-Effective, Economically Viable Transit Options

Based on the overall results of the evaluation related to Goal 2: Provide cost-effective, economically viable transit options it was determined that capital cost was the most important differentiator related to this project goal.

## 6.4 Goal 3: Support Economic Development

The assessment of alternatives under this goal focused on factors used to evaluate land use impacts and economic development potential. The land use evaluation was based on the information required for the land use rating in the FTA New Starts process. A qualitative evaluation of the alternatives based on sustainable community principles was also completed. The methodology used for this evaluation and the detailed results of the evaluation are documented in *Land Use Assessment Methodology and Results Report*, (August 2012).

For purposes of the AA, emphasis was placed on an inventory of *existing* conditions and *adopted* plans and ordinances. Primary sources of information were census data, approved comprehensive plans (state, regional, county and local), approved economic development plans (state, regional, county and local), and adopted ordinances

### 6.4.1 People Served

As described in Section 6.2.1, the number of people served is defined as those individuals living or working within one-half mile of the proposed stations for each alternative. Alternative 7 – Commuter Rail would serve the least number of people (5,700 residents and 4,600 jobs) while Alternatives 4 and 6 would serve the largest number of people (47,300 residents and 29,700 jobs). Alternative 7 also has the lowest potential for increasing transit ridership while Alternatives 4 and 6 have the highest potential.

### 6.4.2 Economic Development Goals and Objectives

The ability to support local, regional, state and interstate economic development goals was defined as consistency with economic development plans including economic development chapters within local, regional and state comprehensive plans. All build alternatives strongly support local, regional and state economic development and comprehensive land use plans.

### 6.4.3 Transit-Supportive Land Use Plans and Policies

All local communities along the Gateway Corridor have land use plans that are consistent with proposed transit station locations. Transit development and the proposed transit station locations are also consistent with state and regional economic development plans. Key findings related to transit-supportive land use plans and policies include:

- Most communities along the corridor have policies that: support the expansion of transit services and the development of transitways; support transit-oriented development and/or an increase in intensification of development along transitways; and support multi-modal transportation planning including bicycles, pedestrians and transit.
- Three communities (Minneapolis, St. Paul and Eau Claire) explicitly support in-fill housing near transit corridors.
- Three communities (Minneapolis, St. Paul and Woodbury) require site design that accommodates transit.
- Only Minneapolis and St. Paul provide development incentives for the reduction of parking or the provision of structured parking.

### 6.4.4 Potential for Station Area Development

The following areas were identified as having the best potential for development or redevelopment near proposed transit stations for the build alternatives:

- The area along East 7<sup>th</sup> Street in St. Paul between Metro State University and Arcade Street (Alternatives 4 and 6)
- Sun Ray Shopping Center area (all build alternatives except Commuter Rail)
- Crossroads/Oaks Business Park area (all build alternatives except Commuter Rail)
- Landfall station area (all build alternatives except Commuter Rail)
- Parcels adjacent to stations in Woodbury (all build alternatives except Commuter Rail) and Lake Elmo (all build alternatives)
- Parcels adjacent to stations in Baldwin, Menomonie and Eau Claire (Commuter Rail only)

For all build alternatives, those stations that have two-sided access and those stations that are not within the freeway median are anticipated to be more likely to promote transit-supportive development. Based on existing documentation of light rail transit's impact on economic and transit-oriented development in the industry, it is anticipated that Alternatives 5 and 6 (LRT) will be somewhat more likely to promote transit-supportive development than Alternatives 3 and 4 (BRT).

### 6.4.5 Evaluation Based on Corridors of Opportunity Vision

The Twin Cities region is working in multiple areas to increase accessibility to economic opportunity for all populations. The current Corridors of Opportunity initiative is one which addresses increased access to transportation as one of its goals. In keeping with this regional initiative, the Gateway alternatives have also addressed the Corridors of Opportunity vision. Key findings related to the evaluation based on the Corridors of Opportunity vision are:

- Alternatives 3, 4, 5, 6 and 8 (LRT, BRT, and BRT/Managed Lane alternatives) perform better than other alternatives when evaluated based on the Corridors of Opportunity vision.

- Alternative 7 (Commuter Rail), which is on an existing railroad line, does not perform as well as the LRT and BRT alternatives due to the limited number of stations and the limited number of residents and employees in close proximity to the proposed stations.

#### **6.4.6 Overall Evaluation Based on Project Goals Related to Economic Development**

Key findings related to the evaluation based on project economic development goals include:

- All alternatives are relatively consistent with regional and local land use and economic development plans.
- the potential for development varies among the alternatives and was identified as the criterion that provides the most differentiation among alternatives related to the project goal of supporting economic development.

#### **6.5 Goal 4: Protect the Natural Environmental Features of the Corridor**

The environmental and community impact assessment was conducted with consideration of NEPA requirements. Topics considered during this impact assessment included:

- Air quality (change in regional classification and reduction in vehicle miles travelled)
- Potential impacts to natural resource features including floodplains, wetlands, lakes, streams and rivers, parks and other public lands
- Potential impacts to known environmentally sensitive areas

The methodology used for the environmental screening and the results of the screening are documented in *Environmental and Community Impact Assessment Methodology and Results Report, August 2012*.

##### **6.5.1 Air Quality**

All alternatives support the goal of providing benefit to the region's air quality by reducing the vehicle miles travelled (VMT) by 0-1% compared to the No Build Alternative.

##### **6.5.2 Impact on Natural Resource Features**

The impact on natural resource features was measured based on the number of acres of wetlands, water bodies, floodplain and/or parklands within 125 feet of the centerline of each alternative. Alternative 8 – BRT Managed Lane has the least potential impact on natural resources because it is located within the existing freeway median. Alternative 7 has the greatest potential impact (75 acres) due to its length (99 miles). The other build alternatives all had less than 30 acres of potential impact on natural resource features.

##### **6.5.3 Impact on Known Environmentally Sensitive Areas**

There are three known environmentally sensitive areas in the Gateway Corridor: the Dayton's Bluff Historic District in St. Paul, the St. Croix Wild and Scenic River, and the Mississippi National River and Recreational Area. Alternatives 4 and 6 pass through the Dayton's Bluff Historic District. Alternative 7 crosses over the St. Croix Wild and Scenic River. None of the alternatives impact the Mississippi National River and Recreational Area.

#### 6.5.4 Sustainability

The ability of fixed guideway transit to contribute to the sustainability of the Gateway Corridor and the adjacent communities was seen by the advisory committees as a potential benefit of improving transit. Neighborhood residents and workers can safely travel to the transit stations, as well as to nearby jobs, amenities and services by foot, bicycle or transit. This contributes to the “location efficiency” of the station (LEED 2009 Rating, Neighborhood Development, pgs. xviii-xix). This benefit was measured by the number of stations per alternative that meet this definition. The No Build and TSM alternatives do not support this objective. Alternatives 4 and 6 (BRT and LRT on 7<sup>th</sup> Street, White Bear Avenue and Hudson Road) strongly support this objective because there are twelve or more stations that meet the definition of location efficiency. The remaining alternatives moderately support this objective.

#### 6.5.5 Overall Evaluation Related to Goal 4: Protect Natural Environmental Features of the Corridor

There were no significant differences in environmental impacts among the proposed build alternatives. Therefore, these criteria were not considered to be key differentiators in the evaluation of alternatives for purposes of the AA.

### 6.6 Goal 5: Preserve and Protect Individual Community Quality of Life

There are ten cities and two townships in the Gateway Corridor between Minneapolis and Hudson. Several additional cities and counties lie adjacent to I-94 between Hudson and Eau Claire, Wisconsin. Each of these local communities has a distinct character and a plan for its future development. Besides being a major economic development and commerce corridor of national significance, the corridor supports some of the Twin Cities region’s largest employers.

Land use and development characteristics include the heavily urbanized downtown areas of Minneapolis and St. Paul in the Twin Cities; transitional suburban/rural development in eastern Ramsey County and Washington County in Minnesota and western St. Croix County in Wisconsin; and the growing rural communities along with the city of Eau Claire in west central Wisconsin. Each of these communities has an individual quality of life that needs to be preserved and protected. The factors that were considered in evaluating performance of the alternatives related to this goal are:

- Community vision and regional growth (comprehensive plans)
- Access to community facilities
- Potential for noise and vibration
- Potential property acquisitions
- Image and use of transit in the corridor

#### 6.6.1 Community Vision

All of the alternatives except the No Build alternative strongly support the individual community development and redevelopment visions in all of the communities along the Gateway Corridor.

#### 6.6.2 Access to Population Centers, Employment Centers and Community Facilities

Table 6-6 provides the year 2030 population and jobs that are estimated to be within one-half mile of all stations associated with each alternative. This shows that Alternatives 4 and 6 (BRT and LRT along 7<sup>th</sup> Street, White Bear Avenue and Hudson Road) would serve the most population and jobs, followed by Alternatives 3 and 5 (BRT and LRT along Hudson Road and I-94). Additionally, all alternatives serve a significant number of community facilities within one-half mile of stations, including community centers, colleges, schools, medical facilities, libraries,

city halls and post offices. Alternatives 4 and 6 serve the highest number of community facilities in close proximity to proposed stations.

**TABLE 6-6**  
Service to Population Concentrations, Employment Concentrations and Community Facilities

Alternative	2030 Population within ½ Mile of Stations	2030 Jobs within ½ Mile of Stations	Community Facilities within ½ Mile of Stations
1—No Build	13,778	5,915	17
2—Transportation System Management	15,970	12,458	22
3—BRT—Hudson Rd/I-94	28,071	19,923	21
4—BRT—E 7th St/White Bear Ave/Hudson Rd	47,306	29,733	43
5—LRT—Hudson Rd/I-94	28,071	19,923	21
6—LRT—E 7th St/White Bear Ave/Hudson Rd	47,306	29,733	43
7—Commuter Rail	5,708	4,581	16
8—BRT Managed Lane on I-94	21,856	13,994	22

### 6.6.3 Noise and Vibration

The potential for noise and vibration impacts was estimated based on the number of residential parcels located within a 500 foot buffer of the centerline of each alternative (see Table 6-7). Alternative 7 – Commuter Rail impacts the highest number of residential parcels, partially due to the much longer length of the commuter rail corridor (99 miles) and given the proposed improvements extend through heavily urbanized areas in St. Paul and Minneapolis.

**TABLE 6-7**  
Potential Noise/Vibration Impact to Residential Parcels Located in Close Proximity to Alternatives

Alternative	Description	Sensitive Land Uses (Residential) Potentially Affected by Noise and/or Vibration within 500' of Alternative's Centerline
1—No Build	No Build	N/A
2—Transportation System Management	Transportation System Management	N/A
3—BRT—Hudson Rd/I-94	BRT along Hudson Rd/I-94	400
4—BRT—E 7th St/White Bear Ave/Hudson Rd	BRT along 7th St/White Bear Ave/Hudson Road	750
5—LRT—Hudson Rd/I-94	LRT along Hudson Rd/I-94	400
6—LRT—E 7th St/White Bear Ave/Hudson Rd	LRT along 7th St/White Bear Ave/Hudson Road	750
7—Commuter Rail	Commuter Rail	2,500
8—BRT Managed Lane on I-94	BRT Managed Lane on I-94	460



### 6.6.4 Property Acquisitions

Table 6-8 presents the estimated number of full and partial property acquisitions associated with each alternative. Alternatives 4 and 6 (BRT and LRT along East 7<sup>th</sup> Street, White Bear Avenue and Hudson Road) require significantly more property acquisition than the other build alternatives.

TABLE 6-8  
Potential Full and Partial Property Acquisitions

Alternative	Potential Number of Acquisitions	
	Full Acquisition	Partial Acquisition
1—No Build	N/A	N/A
2—Transportation System Management	3	3
3—BRT—Hudson Rd/I-94	3	54
4—BRT—E 7th St/White Bear Ave/Hudson Rd	84	331
5—LRT—Hudson Rd/I-94	8	51
6—LRT—E 7th St/White Bear Ave/Hudson Rd	92	349
7—Commuter Rail	16	46
8—BRT Managed Lane on I-94	5	8

### 6.6.5 Transit Image

The advisory committees recommended that the ability of an alternative to change the image of transit and, therefore, increase ridership, be included as a part of the objectives related to preserving and protecting community quality of life. Alternatives 3, 4, 5, 6 and 7, which all include an exclusive transit fixed guideway as well as enhanced transit stations and transit service, strongly support the goal of enhancing the image of transit in the corridor. Alternative 8 – BRT Managed Lane also supports the goal but to a lesser degree, because the transit facilities are in the freeway median.

### 6.6.6 Overall Evaluation of Alternatives for Goal 5: Preserve and Protect Individual Community Quality of Life

Based on the evaluation of the alternatives related to Goal 5: Preserve and protect individual community quality of life, it was determined that property acquisition was the measure that most clearly demonstrated significant differences among the alternatives. Alternatives 4 and 6 (BRT and LRT on 7<sup>th</sup> St/White Bear Ave/Hudson Rd) require significantly greater property acquisition than the other alternatives because the alignments run along existing streets with existing development along both sides of the streets.

### 6.7 Goal 6: Improve Safety

Three factors were considered when evaluating for safety:

- Assists in addressing known travel safety issues along the corridor
- Assists in addressing future safety issues along new fixed guideway (new at-grade crossings or ungated, at-grade crossings)
- Potential for pedestrian/bicycle crossing at undesignated crossing locations



All alternatives have relatively similar ratings for these evaluation criteria and, therefore, these evaluation criteria were not considered to be key differentiators among the alternatives.

## 6.8 Key Differentiators among Alternatives

The evaluation process yielded similar results among the alternatives for the majority of evaluation criteria. Therefore, the results of the evaluation process were distilled down to the most meaningful differentiators. Those differentiators are shown in Table 6-9 and include the following:

- Daily transit ridership
- Capital costs and Cost-Effectiveness Index (CEI)
- Economic development potential
- Property acquisition
- Traffic impacts
- Transit travel times

All of the alternatives were compared again against these key differentiators to assess their ability to fulfill the goals of the AA. Once the key differentiators among alternatives were identified, the advisory committees ranked the alternatives into “low”, “medium” and “high” categories. As noted in Table 6-10, alternatives were ranked as follows:

- High: Alternatives 3 (BRT along Hudson Road/I-94) and 8 (BRT Managed Lane on I-94) were ranked due to lower cost, fewer property acquisitions, fewer traffic impacts and better transit travel times.
- Moderate: Alternatives 5 (LRT along Hudson Road/I-94) and 2 (Transportation System Management) were ranked as moderate due to good transit travel times, fewer property acquisitions and, in the case of Alternative 2, lower cost.
- Low: Alternatives 4 and 5 (BRT and LRT on East 7<sup>th</sup> Street/White Bear Avenue/Hudson Road) and Alternative 7 (Commuter Rail) were ranked low. Alternatives 4 and 5 were ranked low due to high cost, high property acquisitions and slow transit travel times. Alternative 7 was ranked low due to low ridership and high cost.

## 6.9 Recommendations

The Gateway Corridor Commission approved the overall rankings listed above. After presenting the evaluation results to the public in series of open houses, the Commission concluded the following:

- Dismiss Alternative 7 in view of the consistently low rankings across the evaluation measures. However, the rail corridor between Eau Claire, Wisconsin and the Twin Cities remains an option in MnDOT’s Minnesota State Rail Plan.
- All other alternatives were carried forward into an “optimization” process to determine if modifications to the alternatives improve the benefits and/or reduce the costs and impacts of the alternative. The results of the optimization process are provided in Section 7.

TABLE 6-9  
Gateway Corridor Alternatives: Key Differentiators

	Alternative Performance Relative to:						Overall Ranking			
	Daily Transitway Ridership <sup>1</sup>	2019 Capital Cost/CEI <sup>2</sup>	Economic Development	Property Acquisitions	Traffic Impacts	Transit Travel Times <sup>4</sup>	Assessment	LOW	MEDIUM	HIGH
3—BRT along Hudson Rd/I-94 Length = 11.5 miles Stations = 4 walk-up, 8 Park & Rides (P&Rs)	0	+\$420M CEI=\$86.5	0 Serves high population & employment concentrations; high # of stations promotes economic development	+/0 3 full, 54 partial property acquisitions	0 No change in local street access; no lane reductions	+	16 minutes from Oaks Station, Oakdale	This alternative meets project goals better than other alternatives. ✓		
8—BRT Managed Lane Length = 14.4 miles -Stations = 2 walk-up, 8 P&Rs	-	+\$590M <sup>3</sup> CEI= \$112.9	0 Serves areas with high population & employment concentrations; however, stations are in freeway median which are not proven to support economic development	+	+	+	15 minutes from Radio Drive, Oakdale/Woodbury	This alternative includes autos, which is a mobility benefit. It is the only alternative that improves I-94 Level of Service (LOS) (between Manning Avenue and Woodbury Drive/Keats Avenue). ✓		
5—LRT - Hudson Rd/I-94 Length = 11.5 miles Stations = 4 walk-up, 8 P&Rs	+	-\$980M CEI= \$96.6	0 Serves high population & employment concentrations; high # of stations promotes economic development	+/0 8 full, 51 partial property acquisitions	0 No change in local street access; no lane reductions	+	14 minutes from Oaks Station, Oakdale	Alternative 5 ridership may be insufficient to justify an investment in LRT. ✓		
2—TSM Length = 9 mi. (shoulder improvements) Stations = 8 P&Rs	-	+\$65M NA	- No effect	+	0 No changes	+	15 minutes from Guardian Angels, Oakdale	This alternative is currently considered as a baseline by the Federal Transit Administration (FTA). It must be considered for continued analysis through the environmental phase of project development. ✓		
4—BRT - E 7th/White Bear Ave/Hudson Rd Length = 13.3 miles Stations = 7 walk-up, 9 P&Rs	0	+\$500M CEI= \$79.3	+	-	-	-	26 minutes from Oaks Station, Oakdale	Goals are better accomplished under other alternatives. However: • West of Arcade St., E. 7 <sup>th</sup> St. should be studied as part of Rapid Bus transit; and • East of I-494/694, the Alternative 4 alignment should be considered as an option for Alternative 3. ✓		
6—LRT - E 7th/White Bear Ave/Hudson Rd Length = 13.3 miles Stations = 7 walk-up, 9 P&Rs	+	-\$1.3B CEI=\$97.6	+	-	-	0	23 minutes from Oaks Station, Oakdale	Alternative 6 ridership may be insufficient to justify an investment in LRT. However, West of Arcade St., E. 7 <sup>th</sup> St. should be studied as part of a Rush Line transitway. ✓		
7—Commuter Rail Length = 99.9 miles Stations = 6 P&Rs	-	-\$1.2B CEI=\$-141.3	- High population & employment concentrations not served; does not effectively promote economic development	+	0 No changes	+	11 minutes from Ideal Avenue, Lake Elmo	Goals are better accomplished under other alternatives. However, MnDOT and WisDOT should study service to Eau Claire as an intercity rail corridor. ✓		

KEY: + HIGH; 0 MEDIUM; - LOW

1—Numbers above include ridership on the transit guideway only and not supporting bus service.

2—The Cost Effectiveness Index, or CEI, is an Federal Transit Administration (FTA) metric “used to measure the incremental cost per hour of transportation system user benefits in the forecast year.” (Source: Capital Investment Program FY 2012 Evaluation and Rating Process).

3—Portion of capital costs that also benefit the highway system are not eligible under the FTA New Starts program. Additional highway funding could reduce capital costs resulting in a more competitive CEI.

4—Transit travel time compared to an 18 minute projected auto travel time during 2030 AM peak period between the Oaks Business Park Station in Oakdale(or comparable location) and Union Depot.

## 7. Alternative Refinement and Optimization of Alternatives

After the initial detailed evaluation process was complete, the Gateway TAC, PAC, and Corridor Commission elected to “optimize” alternatives with the aim of increasing ridership and other benefits and reducing project costs and impacts on the remaining build alternatives. This exercise was referred to as optimization.

This chapter documents the factors developed to improve the performance of alternatives and the methodology used to evaluate optimized alternatives.

### 7.1 Optimization: Ridership

#### 7.1.1 Phase 1: Sketch Planning

The optimization process was conducted in two phases. In the initial sketch planning phase, factors which had potential to improve benefits while reducing cost were identified and put through a sketch-planning process. The factors considered included:

- Adding a BRT Constant to the regional travel demand model – This factor represents credit given in the ridership model to account for the benefits of fixed guideway service comparable to LRT, such as a superior rider experience in terms of reliability, speed, and amenities.
- Reducing Off-Peak Service – decreasing the frequency of off-peak service when ridership is lower to reduce operating costs.
- Adjusting Dwell Time – reducing dwell time at stations to that needed to accommodate lighter ridership loads results in lower overall trip travel times and increased ridership.
- Refining Travel Time to the 1/10<sup>th</sup> Minute – Presenting refined travel times better represents actual travel time results.
- Adding BRT Bypass Lanes – Bypass lanes were added at BRT stations to allow express bus service to use the guideway along with the station-to-station BRT service.
- Realigning Alternatives 3 and 5 east of I-694 – this factor allowed for analysis of the benefits of shifting Alternatives 3 and 5 out of the freeway median east of I-694. The new alignment replicates Alternatives 4 and 6 through Oakdale and Woodbury.
- Identifying a Minimum Operating Segment – this factor addressed the effects of shortening the BRT and LRT fixed guideways from Manning Avenue to Radio Drive.
- Adding a station at Landfall – this was applied to Alternatives 3 and 5 to increase transit accessibility.
- Relocating stations – For alternative 8, the White Bear and McKnight Stations were relocated to serve Sun Ray Shopping Center and 3M. This was tested in the full model runs as the sketch-plan model was not able to adequately address this change.

The goal of the sketch-planning process was to eliminate the factors that would have a negative impact on cost or ridership before full travel demand model runs were conducted. The results of the sketch-planning phase are summarized in Table 7-1 below.

TABLE 7-1  
Summary of Factors Evaluated in Sketch-Planning Phase of Optimization Process

Factor	Alts.	Ridership Impact	Associated Cost	Other Considerations	Incorporate into Full Model Runs
BRT Constant	3, 4 & 8	Moderate to high increase	None	Constant not proven	Incorporate
Reduce Off-Peak Service	All	Small decrease	High decrease in O&M costs	May reduce service attractiveness	Incorporate
Adjust Dwell Time	All	Small increase	None	None	Incorporate
Revise Travel Time to 1/10th minute	All	Small increase	None	None	Incorporate
BRT Bypass Lanes	3	Moderate to high increase	Small increase to cap. costs; min. O&M cost reduction	Additional ROW needed	Incorporate
BRT Bypass Lanes	4	Small increase		Additional ROW needed	Do not Incorporate— increase in cost with small increase in ridership
Re-align Alts. 3 & 5 east of I-694	3 & 5	Moderate decrease	Small cap. cost decrease; min. O&M cost increase	Increased service attractiveness, economic development potential	TBD – consultation with affected community recommended
Shorten Minimal Operating Segment (MOS) to Radio Dr.	3-6	Large decrease	Moderate cap. cost decrease; min. O&M cost decrease	Ridership loss partially offset by shift to other corridor express service, attractiveness of service decreased	Do not incorporate— large decrease in signature route ridership
Add Landfall Station	3 & 5	Moderate to high increase	Moderate increase in Capital Cost	Adding a station results in a 1-2 min additional delay to run times	Incorporate

Given the results of the sketch planning process, as presented in Table 7-1, the Technical and Policy Advisory Committees approved carrying Alternatives 3, 5, and 8 forward for more detailed assessment in Phase 2 – full travel demand model runs.

In addition, the TAC and PAC recommended, and the Gateway Corridor Commission directed, that adding a station at Radio Drive be evaluated in the next study phase of the project development process (the Draft Environmental Impact Statement).

Early consideration was given to further optimizing Alternative 8, BRT Managed Lane by shortening it to Century Avenue in St. Paul, and by shifting stations to locations outside the I-94 freeway median. The location of stations in the freeway median was maintained, however, to maximize the travel time advantages of this alternative – one of its most significant benefits. Under less constricted comparisons than those followed in the Gateway Alternatives Analysis, in

future studies a managed lane alternative could be additionally optimized by further reduction in infrastructure length and by relocating stations to non-freeway-median locations.

## 7.2 Phase 2: Full Ridership Forecasting Model Run Results

The second phase of the optimization process incorporated the factors estimated to be effective in Phase 1 into full model runs for Alternatives 3, 5, and 8. In addition, Alternative 2 was fully re-modeled given changes to Route W-100 and the reduction in off-peak service frequencies.

### 7.2.1 BRT Constant

One of the optimization factors carried forward into the Phase 2 model runs is implementing a BRT constant, which is a factor that credits a transit mode (e.g., LRT or BRT) for providing a superior rider experience (in terms of reliability, speed, and amenities). The Gateway bus rapid transit alternatives are designed to have virtually the same characteristics and amenities as the proposed light rail mode, with the only difference being the vehicle and guideway employed. Such characteristics include operating on an exclusive rather than shared guideway, the reliability of the schedule, real-time information on vehicle arrival time, stations amenities, and the visibility of the service by “branding” the vehicles.

Two BRT constant values were considered—6 minutes, and 9 minutes. These values are consistent with BRT constants which have been applied to other BRT projects around the country. Based on this comparison, the project team determined that Gateway BRT alternatives qualify for a 9-minute BRT constant. Using a more conservative approach, Gateway alternatives were also modeled using a 6-minute BRT constant. The resulting range of ridership projections provides a reasonable approach, until a decision on applying a BRT constant can be determined based on future discussions with FTA staff.

### 7.2.2 Alternative Optimization Results

The results from incorporating the recommended optimization factors are summarized in Table 7-2. For comparison, the table also includes previous results which are presented in parentheses. In comparison to the original ridership results, average daily ridership for Alternative 3 increased from 5,400 to 8,800 with a 6-minute BRT constant, and to 9,300 with a 9-minute BRT constant.

## 7.3 Optimization: Cost

### 7.3.1 Estimated Capital Costs

The updated capital costs are presented in Table 7-2 below along with a comparison to the cost estimates developed for the originally defined alternatives. Overall, estimated capital costs decreased for all optimized alternatives.

TABLE 7-2  
Optimized Capital Costs (in millions)

Alternative	Alt1	Alt2	Alt3	Alt 4	Alt5	Alt 6	Alt 8
2019 (optimized)	\$0	\$27	\$404	\$468	\$922	\$1,1B	\$523
2019 (original)	\$0	\$62	\$417	\$490	\$979	\$1,3B	\$587

### 7.3.2 Operating and Maintenance Costs

Estimated operating and maintenance (O&M) costs decreased for optimized alternatives, primarily from the reduction in off-peak service from 15 minute to 30 minute frequency, and the elimination of Route W-100 to Eau Claire. Revised estimated operating and maintenance costs are presented in Table 7-3 along with a comparison to the cost estimates developed for the originally defined alternatives.

TABLE 7-3  
Optimized Operating and Maintenance Costs above No Build (in millions)

Alternative	Alt1	Alt2	Alt3	Alt 4	Alt5	Alt 6	Alt 8
2030 (optimized)	\$0	\$11	\$20	\$22	\$21	\$26	\$18
2030 (original)	\$0	\$13	\$24	\$27	\$28	\$35	\$22

### 7.4 Optimization: Tiered Goals and Weighting

The Technical and Policy Advisory Committees developed the project goals, identified in Chapter 3, and ranked them into Tier 1 and Tier 2 goals:

- **Tier 1 Goals**
  - Goal 1 Improve Mobility
  - Goal 2 Provide a Cost-Effective, Economically Viable Transit Option
- **Tier 2 Goals**
  - Goal 3 Support Economic Development
  - Goal 4 Protect the Natural Environmental Features of the Corridor
  - Goal 5 Preserve and Protect Individual Community Quality of Life
  - Goal 6 Improve Safety

Following the initial evaluation of optimized alternatives and input from the TAC, the two Tier 1 goals – ridership and cost - together were weighted with a total of 50 available points. The four remaining Tier 2 goals received the remaining 50 available points. During project development, it became apparent in discussions with project partners that economic development was emerging as a dominant factor. Economic development was therefore weighted more heavily than the other Tier 2 goals, receiving 20 of the possible remaining 50 points.

#### 7.4.1 Criteria Used for Optimized Alternative Evaluation

Because the optimization process resulted in some changes to Gateway alternatives, re-evaluation became necessary to accurately compare remaining alternatives against each other. Goals, objectives, and measures documented in the memorandum, “*Measurements for Evaluating Alternative Performance against Corridor Goals and Objectives*” were used as a starting point for this evaluation. The objective was to determine how optimized alternatives compared using criteria that had already been determined to be key differentiators.

In most cases, the original measures were retained for the re-evaluation process. However, in other cases, the alternative refinements resulted in significant changes that meant original measurement categories no longer provided a sound basis for comparing alternatives. This section details the criteria that were used in the evaluation of select criteria for each project goal. In cases where the criteria differ from that used in the initial detailed evaluation process completed in the spring of 2012 and documented previously in this report, the initial criteria used as well as the criteria used for the optimized evaluation are provided below.

Alternatives rated as “strongly supporting goal” received 10 points; those rated as “supporting goal” received 5 points; those rated as “not supporting goal” received zero points. The maximum point count equaled 100 points.

**7.4.1.1 Goal 1: Improve Mobility; Objectives:**

Each of these criteria under Goal 1 was weighted at a potential 10 points, for a total potential rating of 30 points for alternatives under Goal 1.

- A. Responds to Corridor Travel Demand Pattern: Year 2030 Transit Ridership Forecast. Defined as the estimated daily transitway ridership in the Gateway Corridor in forecast year 2030.

	Original Criteria	Revised Criteria
<b>Ratings:</b>		
<b>Strongly supports goal =</b>	More than 10,000 transitway trips per day	More than 8,000 transitway trips (boardings) per day
<b>Supports goal =</b>	5,000 to 10,000 transitway trips per day	4,000 to 8,000 transitway trips (boardings) per day
<b>Does not support goal =</b>	Less than 5,000 transitway trips per day	Less than 4,000 transitway trips (boardings) per day

- B. Transit Travel Times: Offers competitive commute time compared to trip made via automobile—Comparison of alternative travel times between two fixed points in 2030, during the AM peak period.

	Original Criteria	Revised Criteria
	Performance against Regional Guidelines compared to Auto	Comparison to 2030 AM Peak Auto Travel Time between Crossroads/Oaks Business Park or Radio Drive, and St. Paul Union Depot  (2030 AM Peak Auto travel time = 18 minutes)
<b>Ratings:</b>		
<b>Strongly supports goal =</b>	Exceeds regional guidelines in all 4 corridor segments (less than 35% slower than average auto or express bus time)	Faster than auto travel time
<b>Supports goal =</b>	Meets regional guidelines in all but 1 of 4 corridor segments	Equal to auto travel time
<b>Does not support goal =</b>	Meets regional guidelines in 2 or less of 4 corridor segments	Slower than auto travel time

Traffic Impacts—For local streets (East 7th Street, White Bear Avenue, Hudson Road), several potential impacts which affected the general accessibility of the area resulting from implementing a transitway were identified. In addition, volume to capacity ratios were measured on I-94, and were reported in terms of level of service to reflect potential congestion mitigation resulting from the implementation of alternatives.



**Ratings: Strongly supports goal =** Restrictions at no intersections; no lane reduction; no expected traffic diversion into residential neighborhoods at station locations

**Supports goal =** Restrictions at no intersections; no lane reduction; some expected traffic diversion into residential neighborhoods at station locations

**Does not support goal =** Reduces local street accessibility; reduces lane capacity; and high levels of traffic diversion into residential neighborhoods

#### 7.4.1.2 Goal 2: Provide a Cost-Effective, Economically Viable Transit Option

Each of the criteria under Goal 2 was weighted as a potential 10 points, for a total potential rating of 20 points for alternatives under Goal 2.

Has acceptable Capital Costs (mid-year of Construction, 2019)—defined as the one-time capital cost to construct the transitway (guideway, stations, structures, right-of-way, engineering/design, administration, and contingencies) escalated from 2012 to 2019 using the 3.5% annual escalation rate, consistent with Central Corridor LRT.

	Original Criteria	Revised Criteria
	2019 (\$)	
<b>Ratings: Strongly supports goal =</b>	\$0-\$750 million	\$0-\$500 million
<b>Supports goal =</b>	\$750 million-\$1.5 billion	\$500 million-\$1.0 billion
<b>Does not support goal =</b>	>\$1.5 billion	>\$1.0 billion

C. Has acceptable operating costs—defined as the ongoing annual operating and maintenance costs.

	Original Criteria	Revised Criteria
	2020 (Year of Opening) O&M Costs	
<b>Ratings: Strongly supports goal =</b>	< \$10 million annually	<\$5 million annually
<b>Supports goal =</b>	\$10 million to \$20 million annually	\$5 to \$10 million annually
<b>Does not support goal =</b>	> \$20 million annually	> \$10 million annually

#### 7.4.1.3 Goal 3: Supports Economic Development

Each of the criteria under Goal 3 was weighted as a potential 10 points, for a total potential rating of 20 points for alternatives under Goal 2.

Enhances the potential for increased transit ridership—Defined as existing population and employment already within ½ mile of stations based on available 2010 US Census data. [Note: The figures shown below do not include population and employment forecasts within ½ mile of either the Union Depot or the Interchange.]

	2010 Population	2010 Employment
<b>Ratings: Strongly supports goal =</b>	> 25,000 people	15,000 jobs
<b>Supports goal =</b>	10,000 to 25,000 people	5,000 to 15,000 jobs
<b>Does not support goal =</b>	< 10,000 people	<5,000 jobs

D. Station-area development potential—defined by meeting the majority of the measures shown in the table below.

		Original and Optimized Ranges		Original Ranges	Revised Ranges	Original and Optimized Ranges
		Within ½ Mile of Stations				
		2030 Population	2030 Employment	# of Stations	# of Stations	Station Locations
<b>Ratings: Strongly supports goal =</b>	> 25,000 people	15,000 jobs	≥ 15 stations	≥ 10 stations	All stations located outside of freeway median	
<b>Supports goal =</b>	10,000 to 25,000 people	5,000 to 15,000 jobs	10-15 stations	8-9 stations	Stations located both outside freeway median and within freeway median	
<b>Does not support goal =</b>	< 10,000 people	<5,000 jobs	< 10 stations	< 8 stations	All stations located within freeway median	

#### 7.4.1.4 Goal 4: Protect the Natural Environmental Features of the Corridor

The optimized alternatives did not increase the environmental impacts of alternatives. Given that the initial detailed evaluation completed in the spring of 2012 did not show any of the environmental criteria to be useful differentiators, the project team opted not to re-evaluate specific criteria associated with this goal. This is not to suggest that the alternatives would not result in environmental impacts. A thorough environmental evaluation of alternatives will be completed during the next phase of study.

Goal 4 criteria were weighted at a potential 10 points. All alternatives received the maximum 10 points.

#### 7.4.1.5 Goal 5: Preserve and Protect Individual Community Quality of Life

Objectives: Designed sensitively, with respect to neighborhoods and property values—defined as the potential number of both full and partial parcel acquisitions now estimated to be needed to implement alternative.

	Full Acquisitions	Partial Acquisitions
<b>Ratings: Strongly supports goal =</b>	< 25	< 50
<b>Supports goal =</b>	25-50	50-100
<b>Does not support goal =</b>	> 50	> 100

The original evaluation process identified a substantial number of potential full and partial property acquisitions, in particular for Alternatives 4 and 6. In an attempt to reduce the estimated impacts, options for reducing the space required to implement BRT and LRT along East 7<sup>th</sup> Street and White Bear Avenue were developed and reviewed with St. Paul and Ramsey County staff. The exercise concluded it is not feasible to reduce the BRT and LRT right-of-way requirements enough to generate a substantial reduction in property impacts without compromising both traffic and transit operations. As a result, no changes were made to the design of Alternatives 4 and 6 along East 7<sup>th</sup> Street and White Bear Avenue.

The ranges for this criterion were not changed for the evaluation of optimized alternatives. Goal 5 criteria were weighted at a potential 10 points.

#### 7.4.1.6 Goal 6: Safety

Objectives: Defined as the number of new ungated, at-grade street crossings.

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<b>Ratings:</b>	<b>Strongly supports goal =</b>	< 15 ungated, at-grade crossings
	<b>Supports goal =</b>	15 to 50 ungated, at-grade crossings
	<b>Does not support goal =</b>	>50 ungated, at-grade crossings

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The ranges for this criterion were not changed for the evaluation of optimized alternatives. Goal 6 criteria were weighted at a potential 10 points.

## 7.5 Evaluation Results

With a 100 point maximum point total, the alternatives were then sorted by total points into “High”, “Medium” and “Low” categories. With “High” or “Medium” rankings for all goals, optimized Alternative 3 – BRT adjacent to Hudson Road, again received the highest number of points and was ranked highest of the alternatives. As the highest ranked option overall, with high or medium ranking for all goals, Alternative 3 has:

- Average daily ridership of 8,800-9,300, comparable to LRT ridership of 9,300
- Capital cost of approximately \$400M
- Annual operating & maintenance cost approximately \$9.6M
- High economic development potential, with 10 stations, all outside freeway median
- Competitive travel time to auto and express bus in 2030
- Eligible project for FTA New Starts funding

Alternative 3 had also received a “High” ranking during the previous evaluation of alternatives, before the optimization process.

Optimized Alternative 5, LRT along the same alignment, received equivalent rankings to Alternative 3 in all but one category – cost. Alternative 5 retained its previous ranking of “Medium”. With a Medium ranking because of cost, but high or medium ranking for other goals, Alternative 5 has:

- Average daily ridership of 9,300
- Capital cost of approximately \$920M
- Annual operating & maintenance cost approximately \$11.5M
- High economic development potential, with 10 stations, all outside freeway median
- Competitive travel time to auto and express bus in 2030
- Eligible project for FTA New Starts funding



- Opportunity for detailed comparison to BRT in an EIS

Although Alternative 8, BRT Managed Lane, maintained its “Medium” ranking and compared very favorably in terms of average daily ridership (8100), capital cost (approximately \$520M), and competitive travel time, it did not compare as favorably to Alternatives 3 and 5 for the following reasons:

- Fewer stations (7), and their location within the freeway median, offer less opportunity for economic development around stations for communities in the corridor.
- In accordance with the new Federal transportation law (MAP-21), a managed lane does not qualify for Federal transit funding, and the Twin Cities Transportation Policy Plan does not include future funding for a managed lane in the Gateway Corridor.

The summary matrix attached illustrates the comparative evaluation of alternatives, including rankings under Tier 1 and Tier 2 goals.

## **7.6 Gateway Corridor Commission Recommendation**

On October 11, 2012, the Gateway Corridor Commission approved the following:

- Advance Optimized Alternative 3—BRT adjacent to Hudson Road into the Draft EIS as the preferred option.
- Advance Optimized Alternative 5—LRT adjacent to Hudson Road for comparative purposes to BRT.

The Commission requested public comment on the Alternatives Analysis Final Report through early December 2012. At its December meeting, the Commission will approve the Final Report and direct the project to initiate the next phase of study, environmental analysis under the National Environmental Policy Act (NEPA).

It is understood that under current FTA guidance, Alternative 2—Transportation System Management (TSM), will also advance into environmental analysis. Should new guidance be issued under MAP-21 no longer requiring a TSM baseline, this alternative would not advance into the DEIS. A locally preferred alternative will be determined during the NEPA phase.

TABLE 7-4  
Gateway Corridor Alternatives: Updated Evaluation of Alternatives

Point Assignment	TIER 1 GOALS					TIER 2 GOALS					Overall Ranking
	Goal 1: Improve Mobility (30 points total)			Goal 2: Cost Effective, Economically Viable Option (20 Points total)		Goal 3: Supports Economic Development (20 points total)		Goal 4: Protect Natural Environment	Goal 5: Preserve Community Quality of Life	Goal 6: Safety	
	10 pts	10 pts	10 pts	10 pts	10 pts	10 pts	10 pts	10 pts total	10 pts total	10 pts total	
	Daily Transitway Ridership <sup>1</sup>	Transit Travel Times <sup>2</sup>	Traffic Impacts	2019 Capital Cost (CEI) <sup>3</sup>	Operating Costs	2010 Population & Employment	Station Area Development Potential (2030 Population & Employment, # of Stations, Station Location)	Impact Avoidance/ Minimization & VMT Reduction	Estimated Property Acquisitions	Ungated, At- Grade Crossings <sup>4</sup>	
3—BRT along Hudson Rd/I-94	+	+	0	+	0	+	+	+	0	+	
OPTIMIZED				\$404M							High
Length = 11.7 miles	8,800-9,300	17 minutes from Oaks Station, Oakdale	No change in local street access; no lane reductions	(Note: CEI for 6 and 9 minute constant = \$52/\$46)	\$9.6M	Pop. = 25,722 Emp. = 15,088	Pop. = 29,933; Emp. = 20,012 10 stations Stations all at street level		<10 full, 80 partial property acquisitions		(85 points)
Exclusive Guideway											
Stations = 5 walk-up, 5 Park & Rides (P&Rs)											
5—LRT along Hudson Rd/I-94	+	+	0	0	-	+	+	+	0	+	
OPTIMIZED				\$922M							Medium
Length = 11.7 miles	9,300	15 minutes from Oaks Station, Oakdale	No change in local street access; no lane reductions	(Note: CEI = \$84)	\$11.5M	Pop. = 25,722 Emp. = 15,088	Pop. = 29,933; Emp. = 20,012 10 stations Stations all at street level		<10 full, 80 partial property acquisitions		(75 points)
Exclusive Guideway											
Stations = 5 walk-up, 5 P&Rs											
8—BRT Managed Lane	+	+	+	0	0	0	-	+	+	+	
OPTIMIZED				\$523M							Medium
Length = 14.4 miles	8,100	11 minutes from Radio Drive, Oakdale/Woodbury	Improves I-94 LOS in Segment 2	(Note: CEI = \$67)	\$8.9M	Pop. = 15,683 Emp. = 13,608	Pop. = 19,120; Emp. = 16,842 7 stations Stations all within freeway median		<10 full, 10 partial acquisitions		(75 points)
Managed Lane shared with auto uses											
Stations = 2 walk-up, 5 P&Rs											
2—TSM	-	+	0	+	+	0	-	+	+	+	
OPTIMIZED				\$27M							Low
Length = 9 mi.	3,000	14 minutes from Guardian Angels, Oakdale	No changes	(TSM is basis for CEI of build alternatives)	\$4.5M	Pop. = 12,420 Emp. = 7,943	Pop. = 15,139; Emp. = 11,505 7 stations Stations all at street level		None		(70 points)
Mixed Traffic and Shoulder running											
Stations = 7 P&Rs											

TABLE 7-4  
Gateway Corridor Alternatives: Updated Evaluation of Alternatives

Point Assignment	TIER 1 GOALS					TIER 2 GOALS					Overall Ranking
	Goal 1: Improve Mobility (30 points total)			Goal 2: Cost Effective, Economically Viable Option (20 Points total)		Goal 3: Supports Economic Development (20 points total)		Goal 4: Protect Natural Environment	Goal 5: Preserve Community Quality of Life	Goal 6: Safety	
	10 pts	10 pts	10 pts	10 pts	10 pts	10 pts	10 pts	10 pts total	10 pts total	10 pts total	
	Daily Transitway Ridership <sup>1</sup>	Transit Travel Times <sup>2</sup>	Traffic Impacts	2019 Capital Cost (CEI) <sup>3</sup>	Operating Costs	2010 Population & Employment	Station Area Development Potential (2030 Population & Employment, # of Stations, Station Location)	Impact Avoidance/ Minimization & VMT Reduction	Estimated Property Acquisitions	Ungated, At- Grade Crossings <sup>4</sup>	
4—BRT along E 7th/White Bear Ave/Hudson Rd	0	—	—	+	—	+	+	+	—	0	Low (50 points)
Length = 13.3 miles Exclusive Guideway Stations = 7 walk-up, 6 P&Rs	5,800	26 minutes from Oaks Station, Oakdale	Lane reductions & fewer left turns in E. St. Paul	\$468M <i>(Note: CEI for 6 and 9 minute constant = \$51/\$46)</i>	\$10.8M	Pop. = 41,061 Emp. = 20,630	Pop. = 46,675; Emp. = 28,780 13 stations Stations all at street level		80 full, 330 partial acquisitions		
6—LRT along E 7th/White Bear Ave/Hudson Rd	+	—	—	—	—	+	+	+	—	0	Low (45 points)
Length = 13.3 miles Exclusive Guideway -Stations = 7 walk-up, 6 P&Rs	10,100	23 minutes from Oaks Station, Oakdale	Lane reductions & fewer left turns in E. St. Paul	\$1.1B <i>(Note: CEI = \$87)</i>	\$14.8M	Pop. = 41,061 Emp. = 20,630	Pop. = 46,475; Emp. = 28,780 13 stations Stations all at street level		90 full, 350 partial acquisitions		
Ranking Criteria	+ >8,000 0 4K – 8000 — <4,000	+ Faster than 18 min 0 Equal to 18 min — Less than 18 min	+ No changes to street access/cap. & improves I- 94 LOS 0 No changes to street access/cap. & no change I-94 LOS - Changes to street access/cap. & no change I-94 LOS	+ \$0 - \$500M 0 \$500M - \$1B — > \$1B	Annually + > \$5M 0 \$5M - \$10M — > \$10M	+ >25k pop, >15k emp. 0 10-25k pop. 5-15k emp. — < 10k pop, < 5k emp.	+ >25k pop., >15k emp., >10 stations, all stations outside of freeway 0 10-25k pop., 5-15k emp., 10-15 stations, some stations within freeway median — < 10k pop, < 5k emp., <10 stations, all stations within freeway median	Acres of impact (wetlands, water bodies, floodplains & parklands) + < 50 acres 0 50 – 100 acres — > 100 acres	+ <25 full, <50 partial 0 25-50 full, 50-100 Partial — >50 full, >100 partial	+ < 15 crossings 0 15 – 50 crossings — > 50 crossings	

1. Boardings on BRT or LRT at stations and boardings on express buses using the guideway. All alternative ridership reported for 6 minute BRT constant. Alt 3 includes test of 9 minute BRT constant.  
2. Transit travel time compared to an 18 minute projected auto travel time during 2030 AM peak period between the Crossroads/Oaks Business Park Station in Oakdale(or comparable location) and Union Depot.  
3. The Cost Effectiveness Index (CEI) is a Federal Transit Administration (FTA) metric currently used to measure incremental cost per hour of transportation system user benefits in the forecast year. The CEI will be replaced by a new metric under MAP-21 Surface Transportation Bill.  
4. Consistent with Hiawatha implementation, local street intersections are ungated, increasing the potential for interaction with traffic, pedestrians and bicycles

## 7.7 Consideration of New Federal Transportation Law

Of special note, during the final phase of the Gateway AA, the federal transportation law changed. Under the new law, Moving Ahead for Progress in the 21st Century, called MAP-21, several criteria for evaluating New Starts projects changed. Because new FTA guidance under MAP-21 is not yet available, the Gateway AA procedures continue to be consistent with existing guidance under the Safe, Accountable, Flexible, Efficient Transportation Equity Act—a Legacy for Users (SAFETEA-LU).

Prior to issuance of MAP-21, the FTA also issued a Notice of Proposed Rulemaking (NPRM). Included in the NPRM is the potential double-counting of transit-dependent populations, which may or may not be incorporated into New Starts guidance under MAP-21. The Gateway AA evaluated this potential factor as well, breaking down the corridor population into percentages of people within one-half mile of stations who are under age 18, over age 65, low-income, minority (non-white) or disabled. Table 7-5 displays this information.

TABLE 7-5  
Gateway Corridor Transit Dependent Populations

	% Under 18	% Over 65	% Non White	% Low income	% w/ Disability	2010 Population (used for Age, Race and Income)	2000 Population Age 5 and over (used for % w/ Disability)
Manning Avenue	29.83%	9.01%	18.45%	8.15%	9.64%	466	197
Mounds Earl	30.63%	8.49%	50.61%	50.63%	21.69%	8194	7981
Oak Business Park	23.08%	14.12%	19.76%	17.44%	15.23%	1508	1241
WB Sunray 3M	25.70%	10.59%	42.51%	30.91%	19.10%	9158	8169
Woodbury Dr / Keats Ave	29.98%	7.49%	18.55%	7.25%	9.13%	814	493
Greenway Avenue	22.11%	13.81%	18.63%	18.81%	14.35%	1637	1449
Carmichael Road	26.09%	12.59%	4.38%	14.78%	8.21%	548	207
<b>Alternative 3 Total</b>	<b>25.06%</b>	<b>10.20%</b>	<b>39.88%</b>	<b>34.62%</b>	<b>19.10%</b>	<b>22,325</b>	<b>19,737</b>
Greenway Avenue	22.11%	13.81%	18.63%	18.81%	14.35%	1637	1449
Manning Avenue	29.83%	9.01%	18.45%	8.15%	9.64%	466	197
Metro Arcade Johnson	34.70%	6.41%	62.13%	59.65%	24.15%	14765	14344
Oak Park Radio	24.63%	11.94%	19.33%	13.83%	12.60%	2907	2429
WB7 WB3 Sunray 3M	28.53%	8.86%	47.88%	38.62%	18.96%	14838	13302
Woodbury Dr / Keats Ave	29.98%	7.49%	18.55%	7.25%	9.13%	814	493
Carmichael Road	26.09%	12.59%	4.38%	14.78%	8.21%	548	207
<b>Alternative 4 Total</b>	<b>30.47%</b>	<b>8.35%</b>	<b>48.38%</b>	<b>42.88%</b>	<b>20.30%</b>	<b>35,975</b>	<b>32,421</b>

TABLE 7-5  
Gateway Corridor Transit Dependent Populations

	% Under 18	% Over 65	% Non White	% Low income	% w/ Disability	2010 Population (used for Age, Race and Income)	2000 Population Age 5 and over (used for % w/ Disability)	
Alternative 5	Manning Avenue	29.83%	9.01%	18.45%	8.15%	9.64%	466	197
	Mounds Earl	30.63%	8.49%	50.61%	50.63%	21.69%	8194	7981
	Oak Business Park	23.08%	14.12%	19.76%	17.44%	15.23%	1508	1241
	WB Sunray 3M	25.70%	10.59%	42.51%	30.91%	19.10%	9158	8169
	Woodbury Dr / Keats Ave	29.98%	7.49%	18.55%	7.25%	9.13%	814	493
	Greenway Avenue	22.11%	13.81%	18.63%	18.81%	14.35%	1637	1449
	Carmichael Road	26.09%	12.59%	4.38%	14.78%	8.21%	548	207
	<b>Alternative 5 Total</b>	<b>27.32%</b>	<b>10.20%</b>	<b>39.88%</b>	<b>34.62%</b>	<b>19.10%</b>	<b>22,325</b>	<b>19,737</b>
Alternative 6	Greenway Avenue	22.11%	13.81%	18.63%	18.81%	14.35%	1637	1449
	Manning Avenue	29.83%	9.01%	18.45%	8.15%	9.64%	466	197
	Metro Arcade Johnson	34.70%	6.41%	62.13%	59.65%	24.15%	14765	14344
	Oak Park Radio	24.63%	11.94%	19.33%	13.83%	12.60%	2907	2429
	WB7 WB3 Sunray 3M	28.53%	8.86%	47.88%	38.62%	18.96%	14838	13302
	Woodbury Dr / Keats Ave	29.98%	7.49%	18.55%	7.25%	9.13%	814	493
	Carmichael Road	26.09%	12.59%	4.38%	14.78%	8.21%	548	207
	<b>Alternative 6 Total</b>	<b>30.47%</b>	<b>8.35%</b>	<b>48.38%</b>	<b>42.88%</b>	<b>20.30%</b>	<b>35,975</b>	<b>32,421</b>
Alternative 8	Earl Street	30.52%	9.37%	50.50%	48.51%	20.68%	5551	5213
	Manning Avenue	29.83%	9.01%	18.45%	8.15%	9.64%	466	197
	<i>Ruth St / Sunray (formerly WBA)</i>	<i>19.96%</i>	<i>15.31%</i>	<i>22.69%</i>	<i>17.61%</i>	<i>18.63%</i>	<i>1613</i>	<i>4084</i>
	<i>3M (formerly McKnight)</i>	<i>26.96%</i>	<i>9.59%</i>	<i>46.07%</i>	<i>36.02%</i>	<i>17.77%</i>	<i>4495</i>	<i>1339</i>
	Radio Drive	26.18%	9.66%	18.92%	10.28%	10.14%	1459	1233
	Woodbury Dr / Keats Ave	29.98%	7.49%	18.55%	7.25%	9.13%	814	493
	Carmichael Road	26.09%	12.59%	4.38%	14.78%	8.21%	548	207
	<b>Alternative 8 Total</b>	<b>27.67%</b>	<b>10.11%</b>	<b>38.65%</b>	<b>32.95%</b>	<b>17.88%</b>	<b>14,946</b>	<b>12,766</b>

NOTE: Based on 1/2 Mile buffer around the Station

Source: Disability (2000 Census Tract Data & Table QTP21), Age (2010 Census Tract Data & table QTP1), Race (2010 Census Tract Data & table QTP5), Low Income (2010 Census Tract Data & Table S1701)



## 8. Next Steps: Gateway Alternatives Advance into Project Development

### 8.1 MAP-21 New Starts Process

The Gateway AA was conducted in accordance with FTA Guidance under the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU). While completion of the Gateway AA will occur during the transition to the new U.S. federal transportation bill, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), the Gateway AA follows FTA guidance in existence at the time of its development.

In terms of the New Starts planning process, MAP-21 restructured the project development process. The Federal Transit Administration's process for Capital Investment Grants (New Starts) is now organized into the following phases:

- Project Development
  - Environmental analysis under the National Environmental Policy Act (NEPA): Draft and Final Environmental Impact Statement (EIS)
  - Sufficient preliminary engineering to inform the EIS
  - Selection of the Locally Preferred Alternative (LPA)
- Engineering
  - Final design
  - Local Funding Commitment
  - Construction Plans and Right-of-Way Acquisition
- FTA Full Funding Grant Agreement
- Construction

Under MAP-21, the locally preferred alternative is determined during the NEPA phase.

### 8.2 Gateway Next Steps

Following the December 2012 Gateway Corridor Commission meeting to consider public comment and approve the final report, the Commission will request FTA's acceptance of the Gateway project into Project Development and initiate environmental analysis. Early work will focus on a comprehensive, public scoping process of alternatives. A locally preferred alternative (LPA), formerly identified as the product of an alternatives analysis, will now be identified during the DEIS. Following its identification, the LPA will be reflected in the Twin Cities regional planning process with incorporation into the Transportation Policy Plan.

The Draft EIS process will follow the schedule in Table 8-1.



TABLE 8-1

Draft EIS Process Schedule

Project / Phase	Task	Timeline
Gateway Draft Environmental Impact Statement (DEIS) / Concurrent LPA Decision Process	NEPA Scoping of Most Promising Alternatives	Jan 2013—July 2013
	LPA Input and Decision (Commission, County and City Partners)	July—August 2013
	LPA Action through Transportation Policy Plan Amendment (Metropolitan Council)	August—Dec 2013
	Draft EIS Preparation / Distribution and Comment Period	August 2013—Dec 2014



# Appendix A Results of the Initial Universe of Alternatives Evaluation

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## Appendix B

# Detailed Plan and Critical Profile Drawings

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## Appendix C

# Detailed Plan Drawings

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