Ames Area MPO
metropolitan planning organization

Chapter 6: Alternatives Development and Evaluation

HDR

CHAPTER 6: ALTERNATIVES DEVELOPMENT AND EVALUATION

This Chapter summarizes the alternative development and evaluation process used in developing the LRTP update. The issues and needs identified through the needs assessment process discussed in Chapter 5 were used to develop potential alternatives. These potential alternatives were then screened using evaluation criteria based on the goals and objectives outlined in Chapter 2.

6.1 Alternatives Development

In order to address needs and deficiencies identified through the needs assessment process and through the Issues and Visioning process, various alternatives were developed through the 2 ½ day Alternatives Development Workshop which included a series of meetings with the Focus Group, the Public, and AAMPO staff. These alternatives included roadway, bicycle/pedestrian, transit, and other transportation solutions to address the needs and deficiencies of the transportation system.

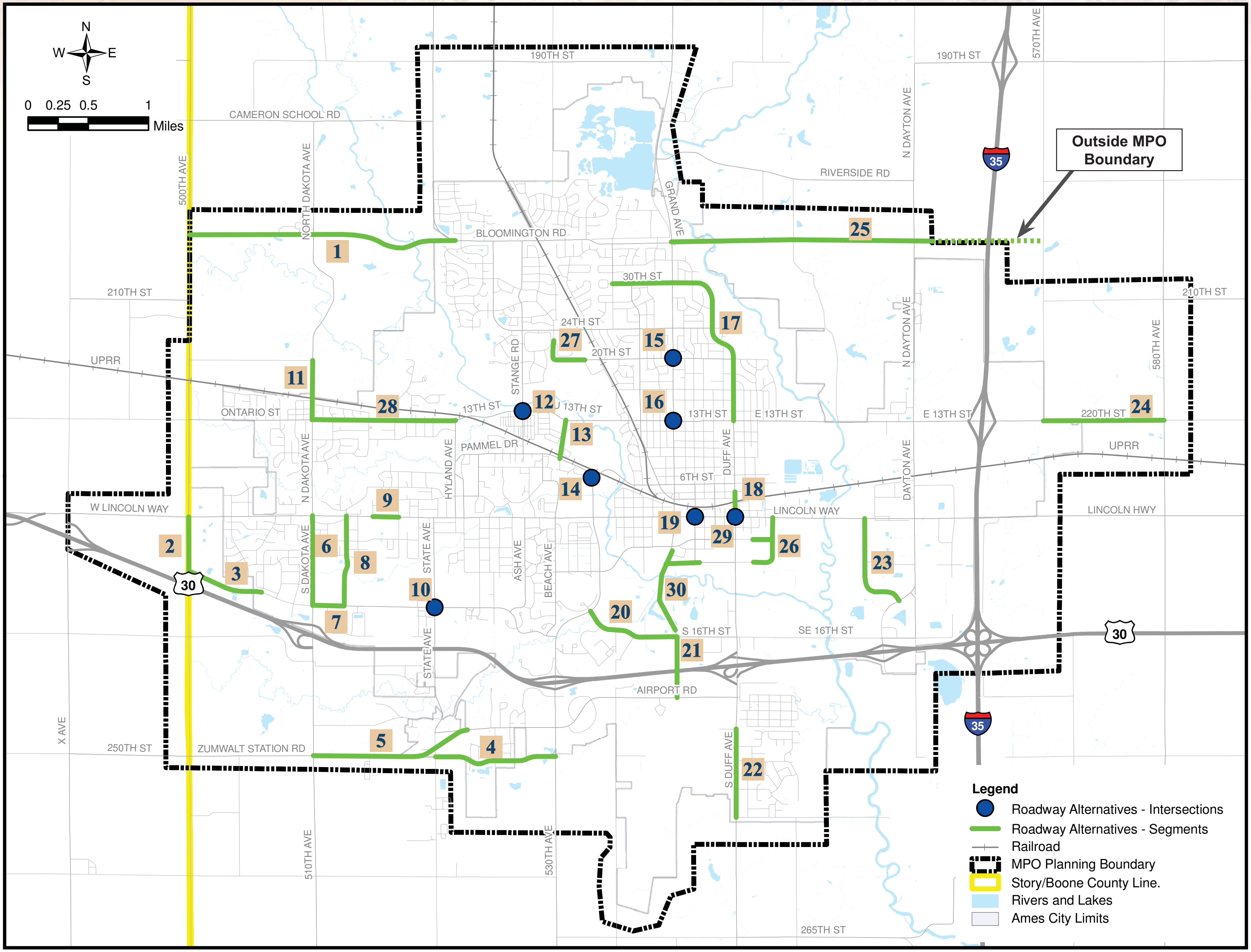
ROADWAY SYSTEM

Given the roadway system deficiencies and issues discovered during the needs assessment and through the Issues and Visioning process, several roadway alternatives were developed and advanced to the next phase of the transportation planning process. Various types of roadway projects were developed, including intersection improvements, widenings, lane reductions, grade separations, realignments, and new roadways. A concept drawing of each specific improvements was developed and is included in Appendix A. These potential roadway projects are shown in **Figure 6.1** and **Table 6.1**.

Table 6.1. List of Roadway Projects Assessed in Alternatives Development

Alternative Project Number	Project Description
1	Bloomington Road Extension - 500th Ave. to George W. Carver Ave.
2	500th Avenue Reconstruction - W. Lincoln Way to Mortensen Road
3	Mortensen Road Extension - 500th Ave. to Miller Ave.
4	Cottonwood Extension - State Ave. to University Blvd.
5	Zumwalt Station Road / Oakwood Road Realignment- 510th Ave. to Worle Ln.
6	S. Dakota Ave. Widening - Lincoln Way to Mortensen Road
7	Mortensen Rd. Widening - S. Dakota Ave. to Dotson Dr.
8	Dotson Dr. / Beedle Dr. Connection - Lincoln Way to Mortensen Road
9	Lincoln Way Widening - Marshall Ave. to Franklin Ave.
10	State Ave. / Mortensen Rd. Roundabout
11	N. Dakota Widening - Ontario Street to 215th Street
12a	Stange Rd. / 13th Street Intersection Improvements - Roundabout
12b	Stange Rd. / 13th Street Intersection Improvements - North/South Left-Turn Lanes
13	Haber Rd. Realignment and Widening - Pammel Dr. to 13th Street
14	University Blvd. / 6th Street Roundabout
15	Grand Ave. / 20th Street Intersection Improvements
16a	Grand Ave. / 13th Street Intersection Improvements- Roundabout
16b	Grand Ave. / 13th Street Intersection Improvements- Add Left-Turn Lanes (All Directions)
17	30th Street / Duff Ave. Lane Reductions - Hoover Ave. to 13th Street
18	Duff Ave. Underpass at Union Pacific Railroad
19	Lincoln Way Left-Turn Lanes at Clark Ave.
20	S. 16th Street Widening - University Blvd. to Grand Ave. Extension
21	Grand Ave. Extension - S. 16th to Airport Rd.
22	S. Duff Ave. Widening - Kitty Hawk Dr. to Ken Maril Rd.
23	Freel Dr. Reconstruction / Extension to Dayton Ave.
24	13th Street Widening - 570th Ave. to 580th Ave.
25	Bloomington Rd. Extension - Grand Ave. to 570th Ave.
26	Cherry Ave. Extension - Lincoln Way to SE 5th Street
27	20th St. Extension - Prairie View West to Ridgewood Ave.
28	Ontario St. Left-Turn Lane - Hyland Ave. to N. Dakota Ave.
29	Lincoln Way / Duff Avenue Intersection Improvements
30	Grand Ave. Extension - Squaw Creek Dr. to S. 16th / 5th Street Extension- Grand Ave. to Duff Ave.

FIGURE 6.1. ROADWAY PROJECTS ASSESSED IN ALTERNATIVES DEVELOPMENT



BICYCLE/PEDESTRIAN SYSTEM

Given the bicycle/pedestrian system deficiencies and issues discovered in during the needs assessment and through the Issues and Visioning process, several bicycle/pedestrian alternatives were developed and advanced to the next phase of the transportation planning process. The various types of bicycle/pedestrian projects included shared-use paths, shared lane markings (sharrows), bicycle lanes, paved shoulders and intersection improvements. Detailed descriptions and guidance on each of these in contained in Appendix B and the following is a brief summary of each type.

Shared Use Path

Shared use paths are bikeways that are physically separated from motorized vehicle traffic by an open space or barrier and are either within the roadway right-of-way or within an exclusive right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users.

Shared Lane Markings (Sharrow)

Shared Lane Markings, also known as "Sharrows", are markings that are used in lanes that are shared by bicycles and motor vehicles when a travel lane is too narrow to provide a standard-width bicycle lane.

Bicycle Lanes

Bicycle lanes are the portion of a roadway which has been designated by striping, singing, and pavement markings for the preferential or exclusive use of bicyclists. They are most appropriate and most useful on arterial and collector streets.

Paved Shoulders

Paved shoulders represent the portion of the roadway contiguous with the traveled way, for accommodation of stopped vehicles, emergency use and lateral support of sub-base, base and surface courses, often used by cyclists. They are typically used on rural roadways and highways, and are beneficial for cyclists on roadways that have higher speeds or traffic volumes.

Intersection Improvements

Intersection improvements can be established through a combination of appropriately narrow lanes, appropriate curb radii, curb extensions, as well as other treatments to reduce conflicts between vehicular and pedestrian/bicycle traffic.

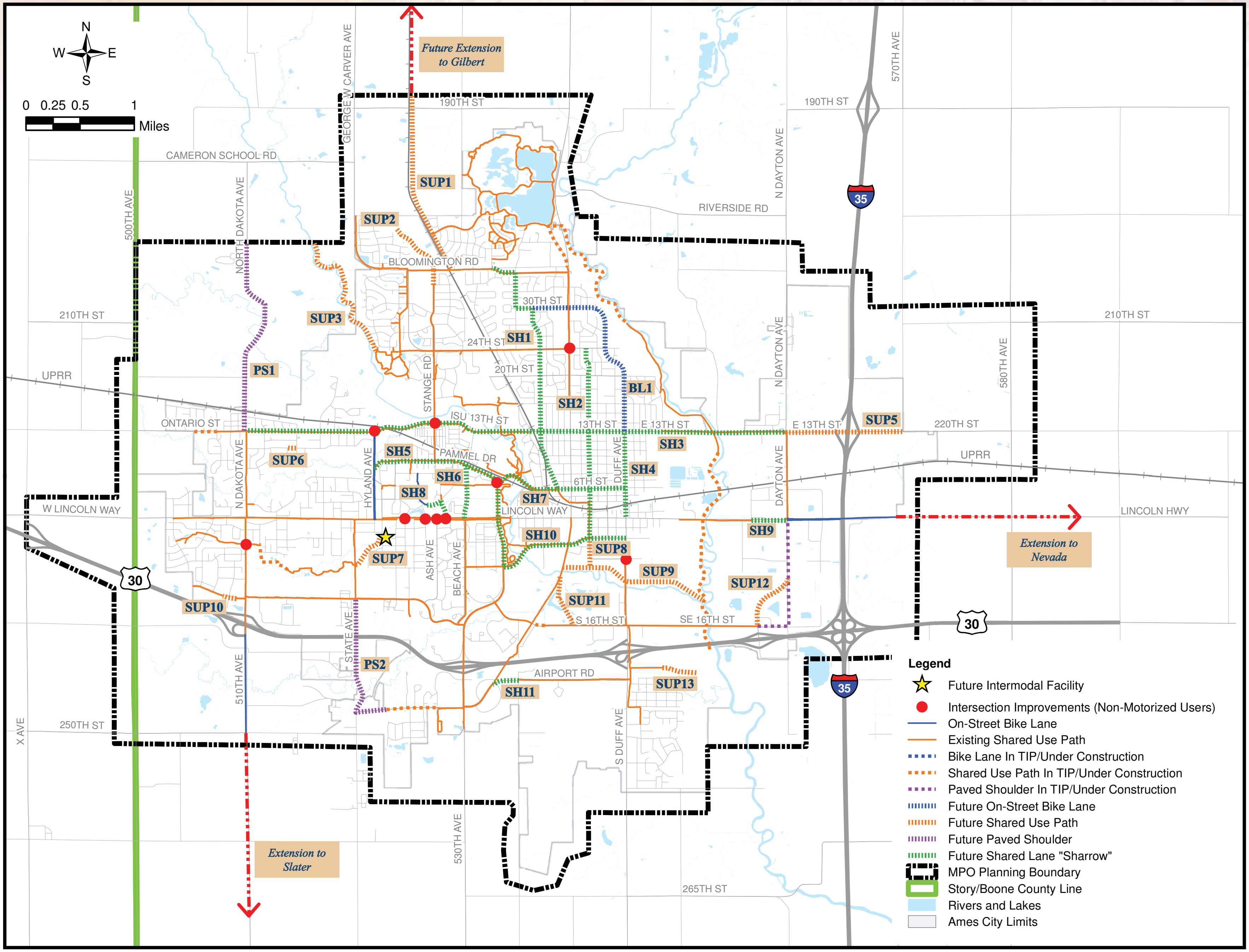
The potential bicycle/pedestrian alternative projects are shown in **Table 6.2** and **Figure 6.2**.

Table 6.2. List of Bicycle/Pedestrian Projects Assessed in Alternative Development

Alternative Project Number	Project Description
BL1	On-Street Bike Lane On Duff Ave - 30th St / Northwestern Ave to 13th St / Duff Ave
SUP1	Shared Use Path Along Union Pacific Railroad - North of Bloomington Road
SUP2	Shared Use Path Along Stange Rd - Dalton St to North of Bloomington Road
SUP3	Shared Use Path Along Squaw Creek - North of Moore Memorial Park
SUP5	Shared Use Path Along E 13th St - Dayton Ave to 570th Ave
SUP6	Shared Use Path at Ross Rd - Mesa Verde Pl to Garfield Ave
SUP7	Shared Use Path to Proposed Intermodal Facility - East of State Ave
SUP8	Shared Use Path Along Walnut St - S 3rd St to Squaw Creek
SUP9	Shared Use Path Along Squaw Creek - Proposed Grand Ave Extension to Skunk River
SUP10	Shared Use Path Along Mortensen Rd - West of South Dakota
SUP11	Shared Use Path Along S 16th Ave and Proposed Grand Ave Extension - East of Apple Ave
SUP12	Shared Use Path Along S Dayton Ave - SE 16th Ave to S Dayton Pl
SUP13	Shared Use Path to Recreational Park - East of Duff Ave

Alternative Project Number	Project Description
PS1	Paved Shoulder on N Dakota Ave - North of Ontario St
PS2	Paved Shoulder on State Ave and Oakwood Rd - South of Mortensen Rd
SH1	Sharrow on Hoover Ave and Northwestern Ave - Bloomington Rd to 6th St
SH2	Sharrow on Clark Ave - 24th St to S 3rd St
SH3	Sharrow on 13th St - N Dakota Ave to Dayton Ave
SH4	Sharrow on Duff Ave - 13th St to Lincoln Way
SH5	Sharrow on Pammel Dr / University Blvd - Hyland Ave to S 4th St
SH6	Sharrow on Beach Rd / Osborn Dr - University Blvd to Lincoln Way
SH7	Sharrow on 6th St - University Blvd to Duff Ave
SH8	Sharrow on Union Drive - Morrill Dr to Lincoln Way
SH9	Sharrow on Lincoln Way - Freel Dr to Dayton Ave
SH10	Sharrow on S 4th St / S 3rd St - University Blvd to Duff Ave
SH11	Sharrow on Airport Rd - N Loop Dr to S Riverside Dr
II	Intersection Improvements for Non-Motorized Users

Figure 6.2. Bicycle/Pedestrian Projects Assessed in Alternatives Development



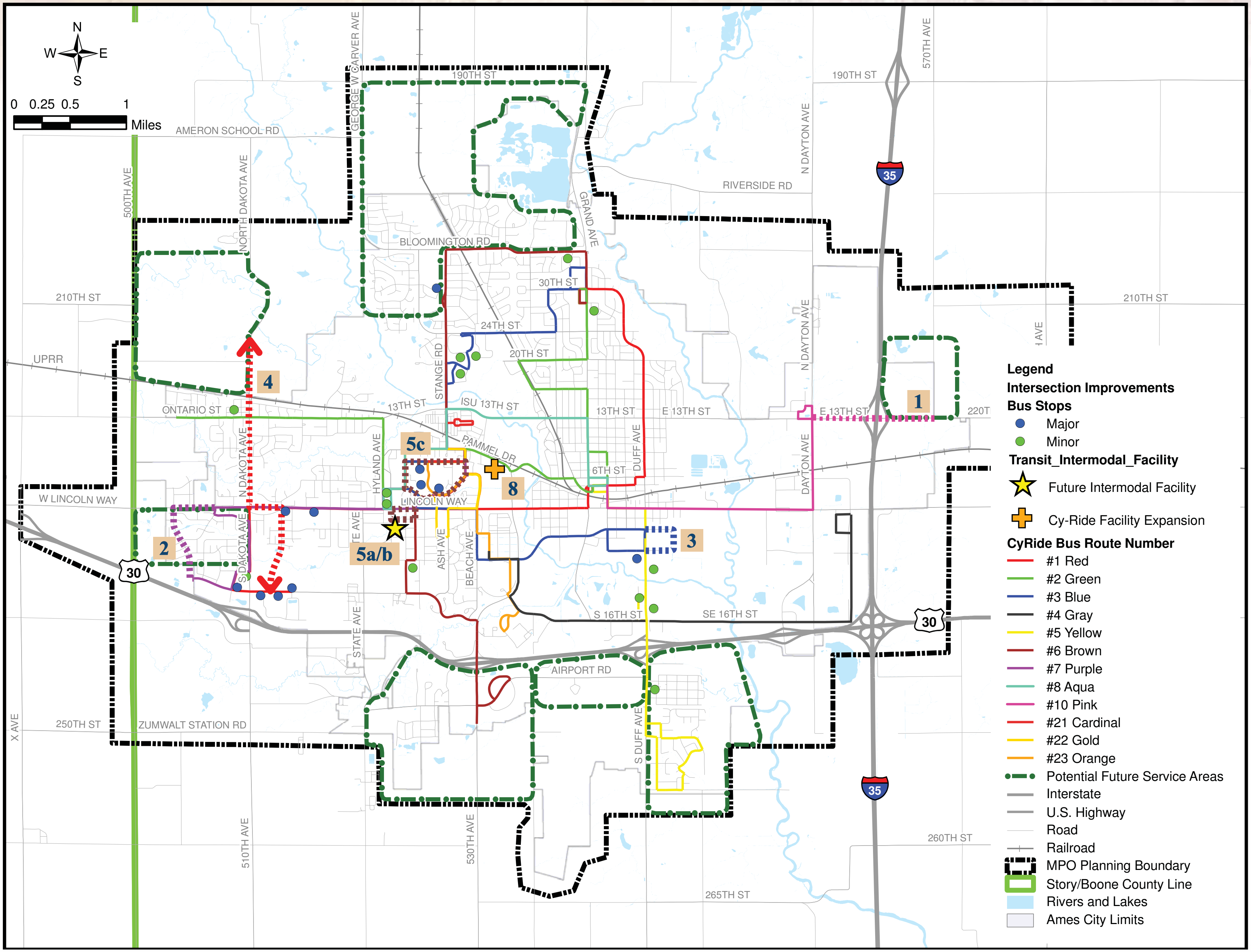
TRANSIT SYSTEM

Given the transit system deficiencies and issues discovered in during the needs assessment and through the Issues and Visioning process, several transit alternatives were developed and advanced to the next phase of the transportation planning process. The various types of transit projects included route extensions, new routes, intermodal facilities, amenity improvements, facility expansion, buses, improved frequency, studies and new technologies. These transit projects are shown in **Figure 6.3** and **Table 6.3**.

Table 6.3. List of Transit Projects Assessed in Alternative Development

Alternative Project Number	Project Description
1	Extend Pink Route to Proposed 13th Street Commercial Development
2	Extend Purple Route to Wilder Blvd.
3	Extend Blue Route to Wal-Mart and Target
4	Cross Town Route- Fieldstone Development to Mortensen Road
5a	Intermodal Facility Phase I
5b	Intermodal Facility Phase II
5c	Intermodal Facility Circulator
6	Bus Stop Improvements
7	Increase Frequencies on Core Routes to 15/30 Minutes from 20/40 Minutes
8	Cy-Ride Facility Expansion
9	Alternatives Analysis Study - Orange Route Corridor
10	Des Moines/Ames Commuter Service Study
11	Articulated Buses on Red/Orange Routes
12	Automatic Vehicle Location Technology

Figure 6.3. Transit Projects Assessed in Alternatives Development



OTHER TRANSPORTATION STRATEGIES

There are other transportation strategies that can be incorporated besides the roadway, bicycle/pedestrian and transit projects that have been presented. Some of these strategies include travel demand management and intelligent transportation system measures.

Travel Demand Management (TDM)

After conducting a review of TDM strategies used in other communities, some potential TDM strategies were identified. TDM strategies are designed to reduce the demand for transportation and thus reduce the number of vehicles using the system. TDM strategies accomplish their goals by effectively changing people's travel behavior and focus on reducing the number of single occupant vehicle (SOV) work-trips during peak periods. TDM can be geared towards the general population (transit), those living in the same neighborhood (carpool/vanpool) and to individuals (telecommuting, flex-time).

Tried and true methods to reduce traffic, improve mobility and air quality have the best results when public/private partnerships and cooperation can be established, and when land use changes can be made.

There are several reasons that the Ames area may benefit from TDM initiatives:

- **Solving Transportation Problems.** Improved transportation options can help reduce traffic congestion, facility costs, road risk, environmental impacts and consumer costs.
- **Efficiency.** Consumer choice is necessary for economic efficiency. Improved transportation options allow consumers to choose the most efficient option for each trip.
- **Equity.** Inadequate transport options often limit the personal and economic opportunities available to people who are physically, economically or socially disadvantaged. Increasing transportation options can help achieve equity objectives.
- **Livability.** Many people value living in or visiting a community where walking and cycling are safe, pleasant and common. There are also public health benefits from increased walking and cycling. As a result, transportation options can help communities become more "livable," resulting in increased property values and commercial activity.
- **Security and Resilience.** Improved transportation options results in a more diverse and flexible transportation system that can accommodate variable and unpredictable conditions. Even people who do not currently use a particular form of transport may value the availability of other forms as insurance to accommodate future needs.

Strategy 1: Aggressive Land Use/ Urban Design

Land use decisions and policies are critical in creating an environment to support mobility. Improved urban design could be integrated into vital areas of Ames. Incorporating urban design elements into key corridors with transit, and creating dense areas with a pedestrian orientation will be necessary to foster comfortable, walkable areas in an urban format. For example, the provision of shading through awnings or canopies over public sidewalk areas to promote pedestrian traffic and provide protection from the weather so that walking is encouraged.

Land use patterns and urban design will have significant effects on how much demand is put on the transportation network. Where people live, work, shop, and recreate generate the need for transportation. The term Smart Growth has been given to the practice of setting up policies that integrate transportation and land use decisions, for example by encouraging more compact, mixed-use development within existing urban areas, and discouraging dispersed, automobile dependent development at the urban fringe. Smart Growth can help improve transport options, create more livable communities, reduce public service costs and achieve other land use objectives. Smart Growth is usually implemented as a set of policies and programs by state/provincial, regional or local governments. It can be incorporated into land use development, often in exchange for reduced development fees and parking requirements. **Table 6.4** includes descriptions of various land use factors that can affect travel behavior.

Table 6.4. Land Use Impacts on Travel

Factor	Definition	Travel Impacts
Density	People or jobs per unit of land area (acre or hectare).	Increased density tends to reduce per capita vehicle travel. Each 10% increase in urban densities typically reduces per capita vehicle miles traveled (VMT) by 1-3%.
Mix	Degree that related land uses (housing, commercial, institutional) are located close together.	Increased land use mix tends to reduce per capita vehicle travel, and increase use of alternative modes, particularly walking for errands. Neighborhoods with good land use mix typically have 5-15% lower vehicle-miles.
Regional Accessibility	Location of development relative to regional urban centers.	Improved accessibility reduces per capita vehicle mileage. Residents of more central neighborhoods typically drive 10-30% fewer vehicle-miles than urban fringe residents.
Centeredness	Portion of commercial, employment, and other activities in major activity centers.	Centeredness increases use of alternative commute modes. Typically 30-60% of commuters to major commercial centers use alternative modes, compared with 5-15% of commuters at dispersed locations.
Network Connectivity	Degree that walkways and roads are connected to allow direct travel between destinations.	Improved roadway connectivity can reduce vehicle mileage, and improved walkway connectivity tends to increase walking and cycling.
Roadway design and management	Scale, design and management of streets.	More multi-modal streets increase use of alternative modes. Traffic calming reduces vehicle travel and increases walking and cycling.
Walking and Cycling conditions	Quantity, quality and security of sidewalks, crosswalks, paths, and bike lanes.	Improved walking and cycling conditions tends to increase nonmotorized travel and reduce automobile travel. Residents of more walkable communities typically walk 2-4 times as much and drive 5-15% less than if they lived in more automobile-dependent communities.
Transit quality and accessibility	Quality of transit service and degree to which destinations are transit accessible.	Improved service increases transit ridership and reduces automobile trips. Residents of transit oriented neighborhoods tend to own 10-30% fewer vehicles, drive 10-30% fewer miles, and use alternative modes 2-10 times more frequently than residents of automobile-oriented communities.
Parking supply and management	Number of parking spaces per building unit or acre, and how parking is managed.	Reduced parking supply, increased parking pricing and implementation of other parking management strategies can significantly reduce vehicle ownership and mileage. Cost-recovery pricing (charging users directly for parking facilities) typically reduces automobile trips by 10-30%.
Site design	The layout and design of buildings and parking facilities.	More multi-modal site design can reduce automobile trips, particularly if implemented with improved transit services.
Mobility Management	Policies and programs that encourage more efficient travel patterns.	Mobility management can significantly reduce vehicle travel for affected trips. Vehicle travel reductions of 10-30% are common.

Source: Victoria Transport Policy Institute. Land Use Impacts on Transport: How Land Use Factors Affect Travel Behavior. November 5, 2008. Todd Litman with Rowan Steele.

Strategy 2: Create Trip Reduction Ordinance

Establishing a city-wide Trip Reduction Ordinance (TRO) that would influence the way that new development would occur is cost effective and creates standard land use and design elements that support successful employee trip reduction programs and mobility-friendly communities. TROs also support Greenhouse Gas reduction programs and create Green jobs.

A TRO may include:

- an employee trip reduction goal
- required elements such as bicycle storage
- pedestrian amenities such as walkways to transit stops
- employee transportation coordinator(s)
- building placement to maximize walking (street facing buildings with parking in rear, residential connectivity to schools and commercial uses), transit and bicycling opportunities
- Support of carpooling and vanpooling should be required such as providing on-site parking spaces -located in preferred locations (next to entrances, in the shade, etc.) and for the exclusive use for carpoolers or vanpoolers

The TRO can be written with flexibility so that the developer may choose which elements to include as long as the goal is reached, or written with specific requirements that must be adhered to, or a combination of both. The developer and/or employer would be required to provide a report demonstrating and detailing project specifics and exactly how the goals would be achieved. Successful TROs typically are incentive based; however, should include consequences for non-compliance such as fines or delayed permitting.

Obstacles include political or developer resistance. However, economical benefits can be shown in order to gain support and developers can be given preferential treatment or expedited permitting if certain elements of the TRO are met or exceeded.

Strategy 3: Create Transportation Management Association (TMA)

A Transportation Management Association (TMA) is a public/private partnership formed so that employers, developers, building owners, and government entities can work collectively to establish policies, programs and services to address local transportation problems. TMA programs traditionally include those that are cost effective and that provide the maximum benefit to the member, including:

- Guaranteed Ride Home Program
- Personalized Carpool Matching
- Vanpool Creation
- Transit Pass Subsidy Program
- Employee Commute Programs
- Seasonal Promotional Programs such as Bike to Work week, or Try Transit week
- Car share program
- City-wide bicycle sharing program

Because of the federal funding available to create green jobs and support climate change efforts, the TMA should aggressively work to identify opportunities and obtain grant funding.

The TMA may encourage other TDM measures such as:

- Flextime
- Compressed Workweek
- Staggered Shifts

The I-235 corridor in the Des Moines area has a TDM initiative underway in a program called TDM-10. The program was assumed to be progressive, with a two percent reduction in peak hour volumes achieved by 2010 and a ten percent reduction in peak hour volumes achieved by 2030. The TDM-10 plan reflects the goals of the travel demand management efforts supported by the Des Moines Area Metropolitan Planning Organization (MPO) and led by The Greater Des Moines Partnership. Part of this program includes the assessment of all transportation decisions made for the downtown area to ensure that they are consistent and supportive of this 10 percent peak hour volume reduction goal. The MPO financially sponsors the TMA, which performs public service in providing information to the public on bus service and ridesharing.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) encompass a variety of transportation system improvements designed to use technology and the application of traffic management and operations methods to improve the efficiency of a transportation network. Some of the objectives of ITS can include, but are not limited to:

- Minimizing response time for incidents and accidents
- Reducing commercial vehicle safety violations
- Utilizing road-weather information systems to reduce weather-related incidents
- Improving emergency management communications by providing real-time traveler information
- Implementing technological solutions to improve transportation management
- Improving highway and transit security
- Minimizing highway-rail grade crossing accidents
- Improving travel demand management

ITS have been shown to be a very effective tool. An integrated transportation system managed and operated more efficiently through the use of ITS technology can enhance quality of life by supporting a safer, more efficient and sustainable transportation system. ITS improvements may also lower the amount of congestion experienced by users and preserve the existing capacity of the transportation system. The regional ITS system for the Ames area is patterned on, and compatible with, the National ITS architecture. On April 8, 2001, the Federal Highway Administration issued Federal Rule 940 entitled "Intelligent Transportation Systems (ITS) Architecture and Standards" and concurrently the Federal Transit Administration issued a policy entitled "National ITS Architecture Policy on Transit Projects". The intent of this Rule and Policy is to require procedures for implementing Section 5307(c) of Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requiring ITS projects to conform to the National ITS Architecture and standards, as well as US Department of Transportation adopted ITS standards.

Regional ITS Architecture

The AAMPO Regional ITS Architecture (January 2007) has been developed through cooperative efforts by the Region's transportation agencies, covering all modes. The Regional ITS Architecture represents a shared vision of how all the agency systems will work together in the future, sharing information and resources to provide a safer, more efficient and more effective transportation system for travelers in the Ames area.

Existing and Potential Intelligent Transportation Systems

The Ames area currently uses several ITS strategies. These strategies include the following:

- Portable Dynamic Message Signs
- Loop Detector Stations
- CCTV Cameras
- Automated Railroad Crossing Horn Warning System
- Traffic Signal Systems
- Traffic and Maintenance Database

There are additional ITS strategies the Ames area could deploy to improve the efficiency of a transportation network. Some of these include:

- Road Weather Information System
- Roadway Anti-Icing System
- Advanced Traffic Signal Control System

Advanced traffic signal control systems can improve the efficiency of a corridor without making physical changes to the roadway network. One type of advanced traffic control systems is adaptive traffic control. Adaptive traffic control is an innovative traffic management tool that automatically updates signal timings at both a local and corridor optimization level. What this means is traffic signal coordination and timing is automatically updated in a real-time manner to better serve traffic without updating timing plans. Different systems operate with different methodologies but overall the intersections constantly update the split, cycle lengths, and offsets to better utilize the cycle lengths by analyzing the volumes present in the intersection and arterial. This means that signal timing is optimized to serve the traffic present as it varies throughout the day.

Many studies have been completed regarding operational benefits of these systems. Research conducted at HDR has shown an average decrease of stops ranging from 10% to 80% on arterials averaging eight intersections. This means that on an eight intersection corridor a driver averaging 4 stops could experience a decrease of one to three stops. When looking at arterial travel time a user could experience a travel time reduction from 10% to 50%. Again, this means that if a driver averages a 5 minute commute through a corridor a user could experience a decrease of travel time from 30 seconds to two and a half minutes with an adaptive system. Recent evidence also shows that installing advanced traffic management will improve both the number of crashes and severity. Results can vary depending on the system selected, quality of existing timing plans, and traffic patterns.

Adaptive technology is a good tool to decrease congestion while improving the speed, travel time, and number of stops along an arterial. This technology is widespread throughout the world and has been growing in the United States as a viable technology in the last 10 years. Due to the real-time nature of adaptive technology an adaptive system is more beneficial where variable traffic demands exist. Typically time of day timing plans do not complement this type of traffic. In Ames an adaptive system would be a great candidate to improve special event traffic from the University and other city events on key arterials. Currently, there are many applicable technologies that could be utilized in Ames to improve traffic operations and safety.

The TDM and ITS strategies discussed in this section are potential solutions to help address the needs and deficiencies of the transportation system.

6.2 Alternative Analysis and Evaluation

Each of the Roadway, Bicycle/Pedestrian and Transit alternatives advanced through Alternative Development process was analyzed and evaluated. The evaluation criteria were developed to relate to the goals and objectives which were established during the Issue and Visioning process. For each criterion, the alternatives were rated either very good, good, average or poor. The results of this evaluation are shown in Appendix A.

ROADWAY SYSTEM

Each of the roadway alternatives was analyzed using the evaluation criteria. This evaluation of the alternatives is only one factor in determining whether a roadway project should be included in the LRTP. There are other factors that also need to be considered like timing, consistency and other overriding factors. These roadway evaluation criteria are shown in **Table 6.5**.

Table 6.5. Roadway Evaluation Criteria

Goal 1 Develop a Safe and Connected Multi-Modal Network	
a	Connectivity/ Continuity
b	Potential Safety/ Security
Goal 2 Foster Livability, Quality of Life, and Sustainable Development	
a	Land Use Consistency
b	Vehicle Miles Traveled (VMT)
c	Vehicle Hours Traveled
Goal 3 Deliver Context Sensitive Solutions	
a	Context Sensitivity
Goal 4 Support Area Economic Opportunities	
a	Economic Impact
Goal 5 Maximize the Benefits of Transportation Investments to Provide Efficient Transportation Service	
a	Congestion Relief
b	Cost
c	Benefit to Cost Ratio
Goal 6 Protect Environmental Resources	
a	Potential Natural Environment Impact
b	Potential Property Impact/ Human Environment

A scorecard for each roadway alternative was developed based on these criteria. The roadway scorecards are located in Appendix A.

BICYCLE/PEDESTRIAN SYSTEM

Each of the bicycle/pedestrian alternatives was analyzed using the evaluation criteria. This evaluation of the alternatives is only one factor in determining whether a bicycle/pedestrian project should be included in the LRTP. There are other factors that also need to be considered like timing, consistency and other overriding factors. These bicycle/pedestrian evaluation criteria are shown in **Table 6.6**.

Table 6.6. Bicycle/Pedestrian Evaluation Criteria

Goal 1 Develop a Safe and Connected Multi-Modal Network	
a	Connectivity/ Continuity
b	Potential Safety/ Security
Goal 2 Foster Livability, Quality of Life, and Sustainable Development	
a	Land Use Consistency
Goal 3 Deliver Context Sensitive Solutions	
a	Context Sensitivity
Goal 4 Support Area Economic Opportunities	
a	Economic Impact
Goal 5 Maximize the Benefits of Transportation Investments to Provide Efficient Transportation Service	
a	Congestion Relief
Goal 6 Protect Environmental Resources	
a	Potential Natural Environment Impact
b	Potential Property Impact/ Human Environment

A scorecard for each bicycle/pedestrian alternative was developed based on these criteria. The bicycle/pedestrian scorecards are located in Appendix A.

TRANSIT SYSTEM

Each of the transit alternatives was analyzed using the evaluation criteria. This evaluation of the alternatives is only one factor in determining whether a transit project should be included in the LRTP. There are other factors that also need to be considered like timing, consistency and other overriding factors. These transit evaluation criteria are shown in **Table 6.7**.

Table 6.7. Transit Evaluation Criteria

Goal 1 Develop a Safe and Connected Multi-Modal Network	
a	Connectivity/ Continuity
b	Potential Safety/ Security
Goal 2 Foster Livability, Quality of Life, and Sustainable Development	
a	Land Use Consistency
Goal 3 Deliver Context Sensitive Solutions	
a	Context Sensitivity
Goal 4 Support Area Economic Opportunities	
a	Economic Impact
Goal 5 Maximize the Benefits of Transportation Investments to Provide Efficient Transportation Service	
a	Congestion Relief
b	Cost
Goal 6 Protect Environmental Resources	
a	Potential Natural Environment Impact
b	Potential Property Impact/ Human Environment

A scorecard for each transit alternative was developed based on these criteria. The transit scorecards are located in Appendix A.

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