6.0 ALTERNATIVES

Numerous deficiencies have been identified along the corridor as they relate to the safety characteristics, traffic operations, and existing roadway geometrics. The purpose of this section is to describe the alternatives development process, the goals and objectives established through public and agency involvement that will be used to evaluate the alternatives, and the set of alternatives that have been identified to address the documented deficiencies.

6.1 ALTERNATIVES DEVELOPMENT PROCESS

The development of a universe of alternatives is an iterative process that follows a series of steps, including: identification of deficiencies, public input to identify opportunities and constraints, avoidance of environmental resources, and consistency with local land use plans and Mn/DOT design guidelines. Each step in the process is described in more detail in the following paragraphs and is shown on **Figure 6-1.**

Identify Deficiencies
The alternatives development process starts with identifying deficiencies to determine if there is a need for improvements and the extent of those improvements. If there are no deficiencies, then the process stops. For this project there are a number of deficiencies that need to be addressed that include safety, operations, and geometric design deficiencies are outlined in Chapter 2: Purpose and Need.

Public and Agency Input
Public and agency input is integral to identifying issues along the corridor. (The Public Involvement Program is outlined in Chapter 8.) An Advisory Committee, a Project Management Team, and public input at the Public Information Open House have confirmed the issues identified in the technical analysis. The public and agency input helped to identify opportunities and constraints to the development of alternative roadway improvements. During the Scoping comment period, public and agency input will be taken into consideration and the alternatives will be revised accordingly. This will establish the alternatives to be evaluated in the Draft EIS.

Avoid Known Sensitive Environmental and Cultural Resources
A critical aspect of laying out the potential alternatives is to use a proactive approach by avoiding known sensitive environmental and cultural resources. The MN Department of Natural Resources (DNR) and the MN Pollution Control Agency (PCA) have been integral in providing information along the corridor. In this project, the north and south bypass alternatives of Courtland and Nicollet have taken into consideration and avoided or minimized impacts to parks, wetlands, cemeteries, the Swan Lake Wildlife Management Area, as well as the sewage treatment ponds south of Nicollet.

Development of Alternatives Process

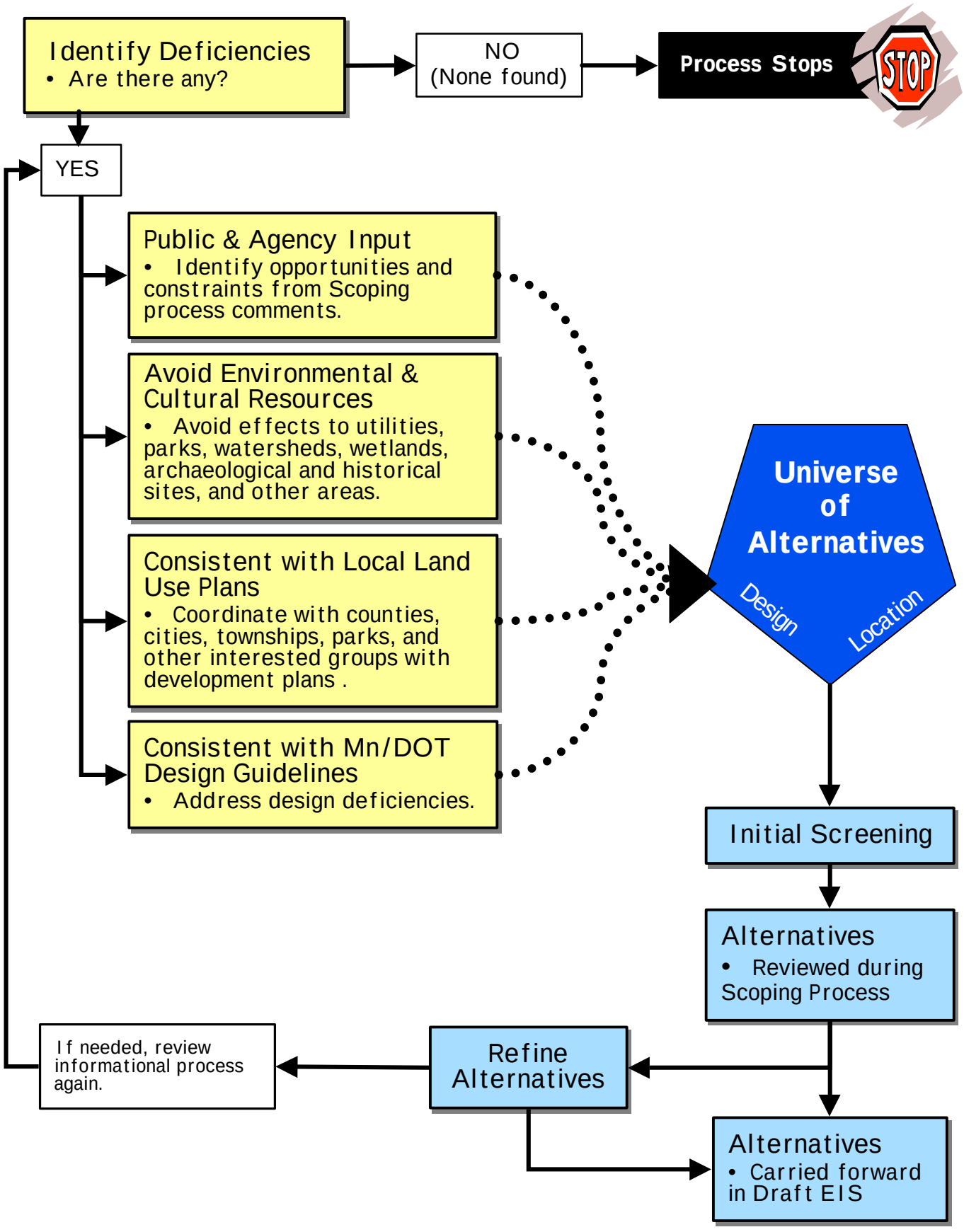


Figure 6-1
Development of Alternatives Process

Consistent with Local Land Use Plans
Information on existing and future land use plans in the corridor was gathered from the Cities of Courtland and Nicollet, and from Nicollet County Environmental Services. Nicollet County has not allowed urban land uses to be located in the agricultural districts of the county since 1981. The City of Courtland's 1998 Comprehensive Land Use Plan shows the relocation of TH 14 to the north of future planned development areas. According to the City of Nicollet 1986 Land Use Plan, the relocation of TH 14 to the south would provide good access to the planned industrial development on the south end of town. All of this input was taken into consideration when developing the conceptual alternatives.

Consistent with Mn/DOT Design Guidelines
Mn/DOT's design guidelines were followed in the development of design alternatives in the corridor. Key design guidelines considered during the preparation of concept alignment layouts included vertical and horizontal curvature, basic number of travel lanes, major intersection locations, and estimated right-of-way requirements.

Aerial photos, United State Geological Survey (U.S.G.S.) maps, and various environmental data bases were examined to determine potential locations for alternative alignments that would address the deficiencies along the corridor while minimizing impacts to the surrounding land uses – natural and cultural resources. The results of the alternatives development process include the location and roadway design alternatives described in the following sections.

6.2 GOALS AND OBJECTIVES

To address the need for roadway improvements in the TH 14 corridor, goals and objectives were developed to serve as a framework for evaluating alternatives. The goals and objectives were developed with input and guidance from the Advisory Committee and the Project Management Team and reinforce the Purpose of the project. Measures of effectiveness were used to identify deficiencies and determine which alternatives would best meet the goals of the project. The development and evaluation of alternatives is in Chapter 5 of the Corridor Management Plan and summarized here. The following are the five goals for the TH 14 West IRC project, each with their objectives and measures of effectiveness:

Goal 1: Safety - ***Provide safe operating conditions throughout the corridor consistent with Mn/DOT guidelines***

- Minimize the number and severity of crashes
  - Ability to meet crash rates for similar facilities in the state.
  - Ability to meet crash rates equal to Mn/DOT safety objectives.
  - Ability to reduce crash rates at high crash frequency locations.
- Minimize conflicts between modes (vehicles/bikes/peds)
  - Ability to enhance pedestrian and bike travel in the corridor.
  - Consider ped/bike crossings.
  - Reduce truck traffic through the Cities of Courtland and Nicollet.
- Provide a high level of design consistency along TH 14
  - Ability to meet Mn/DOT Roadway Design Guidelines.

- Ability to achieve Mn/DOT's goal for no-passing zones.
- System consistency with other segments of TH 14, NHS, and IRC guidelines.

Goal 2: Mobility - ***Provide level of mobility consistent with the functional classification of the roadway and Mn/DOT's IRC performance target***

- Meet long-term speed and mobility objectives
  - Ability to maintain level-of-service C-D boundary.
  - Ability to meet Mn//DOT's IRC performance target of 55+ mph for medium priority corridors.
  - Minimize number of signals.
  - Ability to achieve consistency with Mn/DOT's guidelines for avoiding traffic signal installations along high speed, rural corridors.
- Manage Existing and Future Access along the Corridor
  - Ability to comply with Mn/DOT access management policies.
  - Ability to support the local roadway system.

Goal 3: Environmental - ***Preserve key environmental resources in the corridor***

- Avoid or minimize impacts to natural resources
  - Avoid/minimize impacts to the natural geologic features of the Minnesota River Valley.
- Minimize impacts to the visual quality of the corridor
- Avoid impacts to cemeteries and community facilities
- Avoid/minimize impacts to wetlands, parks, protected waters
- Avoid/minimize impacts to cultural resources

Goal 4: Social – ***Maintain consistency with local land use plans***

- Preserve right-of-way for future highway corridor
- Encourage land use planning/zoning to preclude "Leap Frog" development
- Minimize the number of right-of-way impacts
- Assess impact of transit and park-and-ride needs

Goal 5: Economic– ***Support economic vitality in the corridor and region***

- Meet Mn/DOT travel speed objectives for IRC performance targets
  - Ability to provide reliable travel times for freight haulers.
  - Maintain year round 10-ton status.
- Provide a cost-effective public investment in the transportation system

6.3 ORIGIN / DESTINATION STUDY

A vehicle origin-destination study was conducted to understand travel patterns in the 14 West IRC study area and how those patterns influence the need for, and location of realignments and bypasses of the highway. A total of seven origin-destination survey stations were selected on TH 14 and adjacent major roadways leading into and out of New Ulm, as shown on **Figure 6-2.** The license plates of vehicles passing by each station were recorded and

February 2003

Origin-Destination Study: Station Locations

- Seven survey stations were selected on TH 14 and on major roadways leading into and out of New Ulm.

- The stations were selected to determine the travel patterns of vehicles traveling on TH 14 and other major roadways in the area.

Brown County

New Ulm

Courtland

Nicollet

Legend

- U.S. and Minnesota Highways
- County State Aid Highways
- County, Township, and Local Roads
- Railroads
- Streams
- Lakes
- State Parks
- Counties
- Municipalities
- O-D Study Count Locations

N

0 1 2 3 4 5 Miles

Source: Minnesota Department of Transportation and Howard R. Green Company

14 West Interregional Corridor:
North Mankato to New Ulm

Figure 6-2
Origin-Destination Study: Station Locations

matched to determine if the vehicles passed by more than one location. The matches are used to determine the number of through vehicles versus those that stop or change course in between station locations. Specifically, the station locations were selected to determine the following:

- Is there a high enough percentage of vehicles traveling through the study area to justify bypasses of Courtland, Nicollet, and New Ulm?
- Does the distribution of trips through New Ulm favor making TH 14 the through movement or TH 15 the through movement at the TH 14/TH 15 intersection?

A total of 25,694 license plate records of vehicles passing by all of the stations were collected on Wednesday, August 14, 2002, from 7:00 AM to 7:00 PM. This total represents over 88 percent of the total vehicles recorded on tape passing by all of the stations. It is common for 10 to 15 percent of vehicles on the road to have license plates that are missing, covered up, or unreadable. Therefore a total read rate of 88 percent for license plates is considered to be at or above expectations. Having this high of a read rate provides a high level of confidence in the survey results.

Feasibility of Bypasses of New Ulm, Courtland, and Nicollet

An examination of all of the vehicles entering and exiting New Ulm on TH 14 revealed that about 85 percent were found to have started or stopped in New Ulm. The remaining 15 percent were found to be traveling through New Ulm on TH 14. This suggests that a TH 14 bypass of New Ulm probably would not divert enough vehicle traffic off of the existing TH 14 alignment through the city to make the construction of a bypass economically feasible.

Because the CSAH 37/TH 14 route between TH 15 north and south of New Ulm is shorter both in distance and travel time, it is the route a vast majority of TH 15 through travelers likely use (assuming they are familiar with traveling through New Ulm). This suggests that consideration should be given to rerouting TH 15 along the present CSAH 37/TH 14 route. It is recommended that Mn/DOT and Nicollet County staff begin discussions on how this route conversion could be implemented over time.

An examination of all of the vehicles on the west side of Courtland and the east side of Nicollet revealed that only about 50 percent were found to have started or stopped in either Courtland and/or Nicollet. The remaining half were found to be traveling through both cities on TH 14. This suggests that a TH 14 bypasses of the two cities would likely divert enough vehicle traffic off of the existing TH 14 alignment to make the construction of bypasses economically feasible.

Through Movements at the TH 14/TH 15 Intersection

The survey results show that the majority of vehicles traveling through New Ulm on TH 14 from the western city boundary stay on TH 14 past the eastern city boundary and vice versa. In other words, continued travel on TH 14 through New Ulm is the predominant movement. This suggests a realignment of TH 14 in the western portion of the corridor would provide a

benefit by making TH 14 the through movement at its intersection with TH 15 and CSAH 21. This is because the vehicles traveling on TH 14, which constitute the predominant intersection movement, would no longer have to stop or turn in order to continue their trip along TH 14.

Summary of Origin-Destination Study

There is a high level of confidence in the survey results, which indicate that:

- Bypasses of Courtland and Nicollet would most likely divert 50 percent of the traffic around the cities, supporting the feasibility of a bypass.
- A bypass of New Ulm is not suggested because the City, as a regional trade center, is an origin or destination for 85 percent of the traffic

The results of the Origin-Destination Study were used in the development of alternatives, particularly the bypass alignments around Courtland and Nicollet and the reconfiguration of the intersection at TH 15.

6.4 NO-BUILD ALTERNATIVE

The No-Build Alternative represents no change to the transportation facility along the TH 14 West corridor beyond already committed projects. This includes only those roadway improvements defined in the appropriate agencies' Long Range Transportation Plan for which funding has been committed. The No-Build Alternative provides a basis for comparison of the Build alternatives to determine the future impacts if no major construction improvements are implemented in the study area.

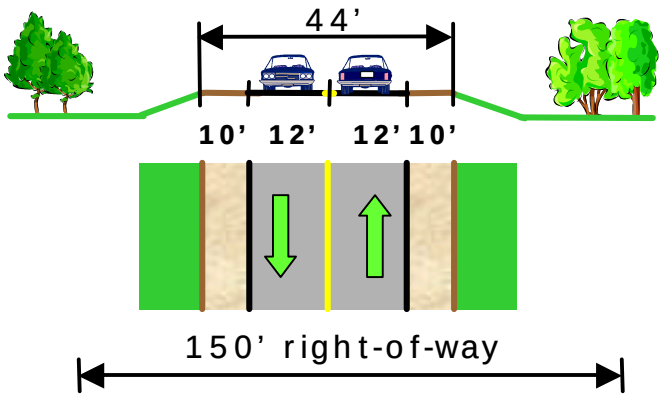
6.5 BUILD ALTERNATIVES

In order to address the identified safety, traffic operations, design, and access deficiencies documented in Chapter 2, a variety of roadway design and location alternatives were developed and evaluated.

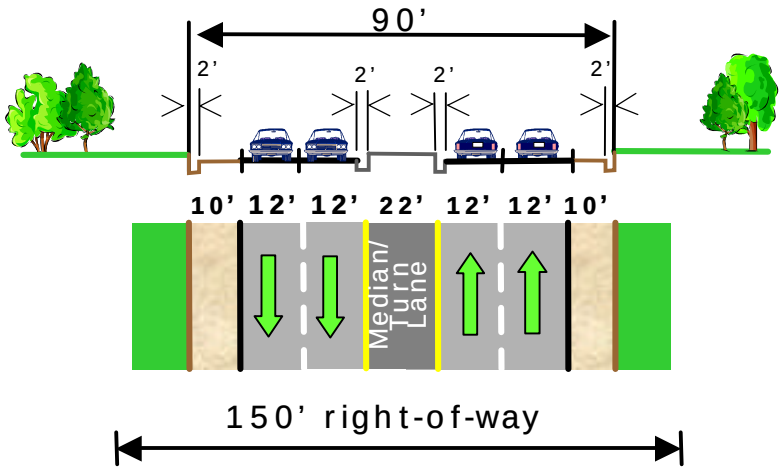
ROADWAY DESIGN ALTERNATIVES

Roadway design alternatives consisted of: an improved two-lane rural roadway, a four-lane urban roadway, and a four-lane rural roadway. These alternatives were evaluated based on their ability to meet the needs of the TH 14 Corridor. Typical roadway and right-of-way widths for each design alternative are shown on **Figure 6-3** and a description of additional roadway characteristics follows:

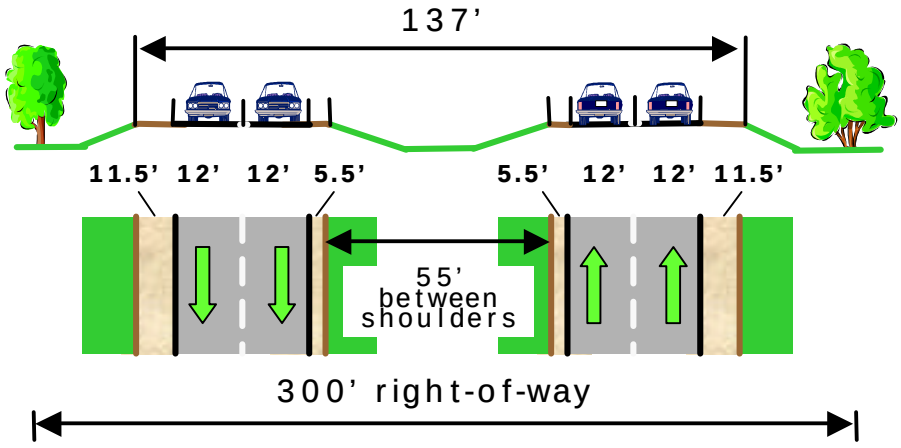
Alternative A: Improved Two-Lane Rural Roadway



Alternative B: Four-lane Urban Roadway



Alternative C: Four-Lane Rural Roadway



TH 14 West Interregional Corridor:
North Mankato to New Ulm

Not to scale

Figure 6-3
Roadway Design Alternatives

Last updated:3/25/2003

Alternative A: Improved Two-Lane Rural Roadway
A modern, rural two-lane roadway typically has:

- A 44-foot roadway width, which includes: one 12-foot through-lane in each direction and 10-foot paved shoulders.
- 150 feet of right-of-way.
- Minimum design speed of 60 miles per hour (mph), (the speed limit would be posted at 55 mph consistent with state law).
- Left and right turn lanes at key intersections.
- Managed access.

This alternative does not address the safety and operational deficiencies along the roadway. A two-lane design does not meet the purpose and need for the project because it does not meet the mobility objectives with the forecast traffic volumes.

Alternative B: Four-Lane Urban Roadway
A modern, four-lane urban roadway typically has:

- A 90-foot roadway width which includes: two 12 foot lanes in each direction, 22-foot raised concrete medians (includes 2-foot curb and gutter), 10 foot paved outside shoulders (includes 2-foot curb and gutter), and an enclosed drainage system.
- 150 feet of right-of-way.
- Minimum design speed of 60 mph (the speed limit for similar facilities is typically posted at 45-55 mph depending on specific location, traffic volume, and access features).
- Left and right turn lanes at key intersections.
- Managed access.

This alternative addresses safety and operational deficiencies, and would reduce environmental effects and right-of-way acquisition compared to the width of a four-lane rural design. This four-lane design would be appropriate for the existing alignment through the Cities of Courtland and Nicollet, but not in the rural areas where a curb, gutter, and enclosed drainage system design would not be needed and would increase construction costs.

Alternative C: Four-Lane Rural Roadway
A modern, four-lane rural roadway typically has:

- A 137-foot roadway width which includes: two 12-foot through-lanes in each direction, 11.5-foot outside shoulders (10-foot paved), 5.5-foot inside shoulders (four foot paved), and a 55-foot depressed center grass ditch median (or 66-feet from edge of traveled lane to edge of traveled lane at intersections).
- 300 feet of right-of-way
- Design speed of 70 mph (the speed limit would be posted at 65 mph consistent with state law).
- Left and right turn lanes at key intersections.
- Managed access.

This alternative addresses safety and operational deficiencies and is consistent with Mn/DOT's long-range plan for the roadway, although it has the potential for the greatest environmental impacts because of the right-of-way width.

Design Alternative Recommendations

It is recommended that the four-lane Design Alternatives be carried forward because they are the most consistent with the purpose and need for the project.

It is recommended that the improved two-lane Design Alternative be dismissed because it does not address the primary deficiencies (safety and traffic operations) documented along TH 14 and because a two-lane design is not consistent with Mn/DOT's long-range objectives relative to mobility and safety for the corridor.

LOCATION ALTERNATIVES

A universe of location alternatives was identified to address the purpose and need for the project. Alternatives were selected based on the deficiencies identified during the analysis of existing and forecast conditions, the results of the origin-destination study, and input from the communities along the TH 14 Corridor. The universe of location alternatives is shown on **Figure 6-4**. For evaluation purposes the corridor was divided into three segments to address the corridor deficiencies. Starting at the west end of the corridor, alignments were developed for: the area in the vicinity of the TH 14/TH 15/CSAH 21 intersection, Courtland, and Nicollet with reasonable connections between them in the rural areas.

Segment 1 – TH 15/CSAH 21 to T 150

The key issues to address in Segment 1 are the safety and geometric deficiencies at the intersection of TH 14/TH 15/CSAH 21 as well as intersection level-of-service and mobility. Improving this intersection is a priority in the development of alternatives. The Thru-STOP condition at this intersection forces traffic traveling west on TH 14 to come to a complete stop at the intersection and make a left turn to continue along the route even though it carries the highest volume of traffic. East bound traffic on TH 14 has a free-right turn and slows to 15 mph to make the turn. Except for the four-lane design on Existing Alignment, all location alternatives for this segment make TH 14 the through movement consistent with the results of the Origin-Destination Study. Location alternatives for Segment 1 are shown on **Figure 6-4a** and descriptions are as follows:

Existing Alignment – The existing alignment of TH 14 lies between the Minnesota River and the bluff and maintains the Thru-STOP movement for TH 14.

Advantages:

- Least amount of right-of-way needed.
- Limits roadway related impacts to existing alignment.
- Consistent with County land use policies for agricultural land preservation.
- No river bluff impacts.

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Courtland/Top of Bluff Alignment

Courtland/Hilltop Alignment

Hwy 21 Alignment

River Valley Alignment

Courtland Northern Bypass # 2

Courtland Northern Bypass # 1

Hwy 14/15 Top of Bluff Alignment

Hwy 14/15/37 Alignment

Courtland Southern Bypass

Courtland - Nicollet Bypass Connection

Hwy 25 Alignment

Hwy 68 Alignment

Nicollet Northern Bypass

Nicollet Southern Bypass #1

Nicollet Southern Bypass # 2

Exisiting Corridor

Nicollet County

Brown County

Courtland

New Ulm

Nicollet

T 150

T 169

T 166

T 179

MINNESOTA 15

MINNESOTA 68

MINNESOTA 111

MINNESOTA 99

14

Legend

- Project Corridor
- U.S. and Minnesota Highways
- County State Aid Highways
- County, Township, and Local Roads
- Railroads
- Streams
- Lakes
- State Parks
- Counties
- Municipalities

N

0 1 2 3 4 5 Miles

Source: Minnesota Department of Transportation

Moving Minnesota

14 West Interregional Corridor:
North Mankato to New Ulm

Figure 6-4
Universe of Alignment Alternatives

February 18, 2003

New Ulm

MINNESOTA 15

MINNESOTA 68

River Valley Alignment

Hwy 14/15 Top of Bluff Alignment

Hwy 14/15/37 Alignment

Courtland/Hilltop Alignment

Courtland/Top of Bluff Alignment

Hwy 21 Alignment

Exisiting Corridor

12

21

T 150

14

Courtland

Legend

- Project Corridor
- U.S. and Minnesota Highways
- County State Aid Highways
- County, Township, and Local Roads
- Railroads
- Streams
- Lakes
- State Parks
- Counties
- Municipalities

N

0 0.5 1 1.5 2 Miles

Source: Minnesota Department of Transportation

Minnesota Department of Transportation — Moving Minnesota

14 West Interregional Corridor:
North Mankato to New Ulm

Figure 6-4a
Segment 1 - Universe of Alignment Alternatives

Disadvantages:

- Provides limited space for improvements to the intersection of TH 14/TH 15/CSAH 21.
- Crash rates would not likely be reduced at the intersection of TH 14/TH 15/CSAH 21 because the existing intersection geometry and unusual patterns of turning traffic would be perpetuated.
- Not expected to meet future mobility needs.
- Potential impacts to structures identified in the State Historic Preservation Office database.
- Potential impacts to Minnesota River floodplains.
- Potential impacts to wetlands, including public waters wetlands associated with the Minnesota River.
- Potential impacts to steep slope areas.
- Intersection traffic operation deficiencies with the Thru-STOP traffic control.
- Access management plan (frontage roads and access realignment/closures) would need to be in place to meet IRC access guidelines.

River Valley Alignment– This alignment is located on the existing TH 14 roadway connecting both legs of TH 14 with a 60 mph horizontal design curve making TH 14 the through movement. TH 15 can be connected to new TH 14 with either an at-grade intersection or a future interchange.

Advantages:

- Crash rates are expected to be substantially reduced at the intersection of TH 14/TH 15/CSAH 21 as a result of intersection improvements and aligning the TH 14 legs, making TH 14 the through movement.
- Moving the intersection to the east allows additional right-of-way for intersection improvements.
- Limited amount of right-of-way acquisition.
- Improved mobility by making TH 14 the through movement.
- Consistent with County land use policies for agricultural land preservation.
- No river bluff impacts.

Disadvantages:

- Potential impacts to structures identified in the State Historic Preservation Office database.
- Potential impacts to Minnesota River floodplains.
- Potential impacts to wetlands, including public waters wetlands associated with the Minnesota River.
- Access management system (frontage roads and access realignment/closures) would need to be in place to meet IRC access guidelines.

Hwy 14/15 Top of the Bluff Alignment – This alignment is located just east of and on the top of the Minnesota River Bluff, leaving the existing alignment just west of the intersection of TH 14 / CSAH 37.

Advantages:

- Crash rates are expected to be substantially reduced at the intersection of TH 14/TH 15/CSAH 21 as a result of intersection improvements and aligning the TH 14 legs, making TH 14 the through movement.
- Since this alternative ends above the bluff line, more right-of-way would be available for intersection improvements.
- Fewer water resource (wetland/floodplain) impacts than the Existing Alignment alternative.
- Improved mobility by making TH 14 the through movement.

Disadvantages:

- Would require moderate amount of right-of-way acquisition in undeveloped areas.
- High impacts to river bluff.
- Introduces roadway related impacts to a new area.
- Difficult for trucks to ascend/descend steep grades.

Hwy 14/15/37 Top of the Bluff Alignment – This alternative is located just east and parallel to the existing alignment on the top of the Minnesota River Bluff. The realignment begins about 4000 feet east of the TH 14 / CSAH 37 intersection, and connects with the existing TH 14 / TH 15 Minnesota River Bridge. The CSAH 37 Corridor can be extended to meet the new alignment at a location further east.

Advantages:

- More right-of-way is available for intersection improvements, because this alternative is above the bluff line.
- Crash rates are expected to be substantially reduced at the intersection of TH 14/TH 15/CSAH 21 as a result of intersection improvements and aligning the TH 14 legs, making TH 14 the through movement.
- Fewer water resource (wetland/floodplain) impacts than the Existing Alignment alternative.
- Improved mobility by making TH 14 the through movement.
- Since this alternative ends above the bluff line, more right-of-way would be available for intersection improvements.

Disadvantages:

- Would require moderate amount of right-of-way acquisition in undeveloped areas.
- High impacts to river bluff.
- Difficult for trucks to ascend/descend steep grades.
- Introduces roadway related impacts to new area.

- Introduces question of CSAH 37 connection that most likely would require another bluff cut.

Courtland - Top of the Bluff Alignment – This location alternative moves TH 14 to a new alignment just above the bluff line from the intersection of TH 14 / TH 15 / CSAH 21 to the City of Courtland where it connects with the Courtland northern bypass alternatives.

Advantages:
- Avoids the tight right-of-way situation below the bluff.
- Since this alternative is above the bluff line, more right-of-way is available for intersection improvements.
- Avoids bluff impacts.
- Crash rates are expected to be substantially reduced at the intersection of TH 14/TH 15/CSAH 21 as a result of intersection improvements and aligning the TH 14 legs, making TH 14 the through movement.
- Fewer water resource (wetland/floodplain) impacts than the Existing Alignment alternative.
- Improved safety and mobility at the intersection of TH 14/TH 15/CSAH 21 by making TH 14 the through movement.

Disadvantages:
- Requires a large amount of right-of-way acquisition in undeveloped areas.
- Is inconsistent with County and Township land use policies.
- Introduces roadway related impacts to new area.

Hwy 21 Alignment – This alternative follows the CSAH 21 alignment, bypassing the City of Courtland. The western connection of the alternative connects with TH 15 at a location further north, relocating the TH 14 / TH 15 / CSAH 21 intersection to an area above the bluff line.

Advantages:
- Creates additional available right-of-way for intersection improvements.
- Crash rates are expected to be substantially reduced at the intersection of TH 14/TH 15/CSAH 21 as a result of intersection improvements and aligning the TH 14 legs, making TH 14 the through movement.

Disadvantages:
- Substantial impacts to farmland, wetlands/public waters, and portions of the Swan Lake WMA.
- Existing residential access along the existing Highway 21 corridor would require additional improvements including frontage roads, access relocation and/or access closures.
- Poor connectivity with CSAH 37.
- Introduces roadway related impacts to new area.

- Expanding the capacity of the roadway from two to four lanes on the existing alignment will create a substantial amount of right-of-way impacts to existing structures especially where the alignment is close to farmsteads.
- Inconsistent with community qualities.

Courtland/Hilltop Alignment – This alternative is on new alignment, going north from the northern bypass alternative within the City of Courtland on a half section line and connecting to TH 15 north of existing CSAH 21.

Advantages:

- Since this alternative is above the bluff line, more right-of-way would be available for intersection improvements.
- Crash rates are expected to be substantially reduced at the intersection of TH 14/TH 15/CSAH 21 as a result of intersection improvements and aligning the TH 14 legs, making TH 14 the through movement.
- Improved mobility by making TH 14 the through movement.

Disadvantages:

- Requires a large amount of right-of-way acquisition in undeveloped areas.
- Inconsistent with County land use policies for agricultural land preservation.
- Poor connectivity with CSAH 37.
- Inconsistent with community qualities.

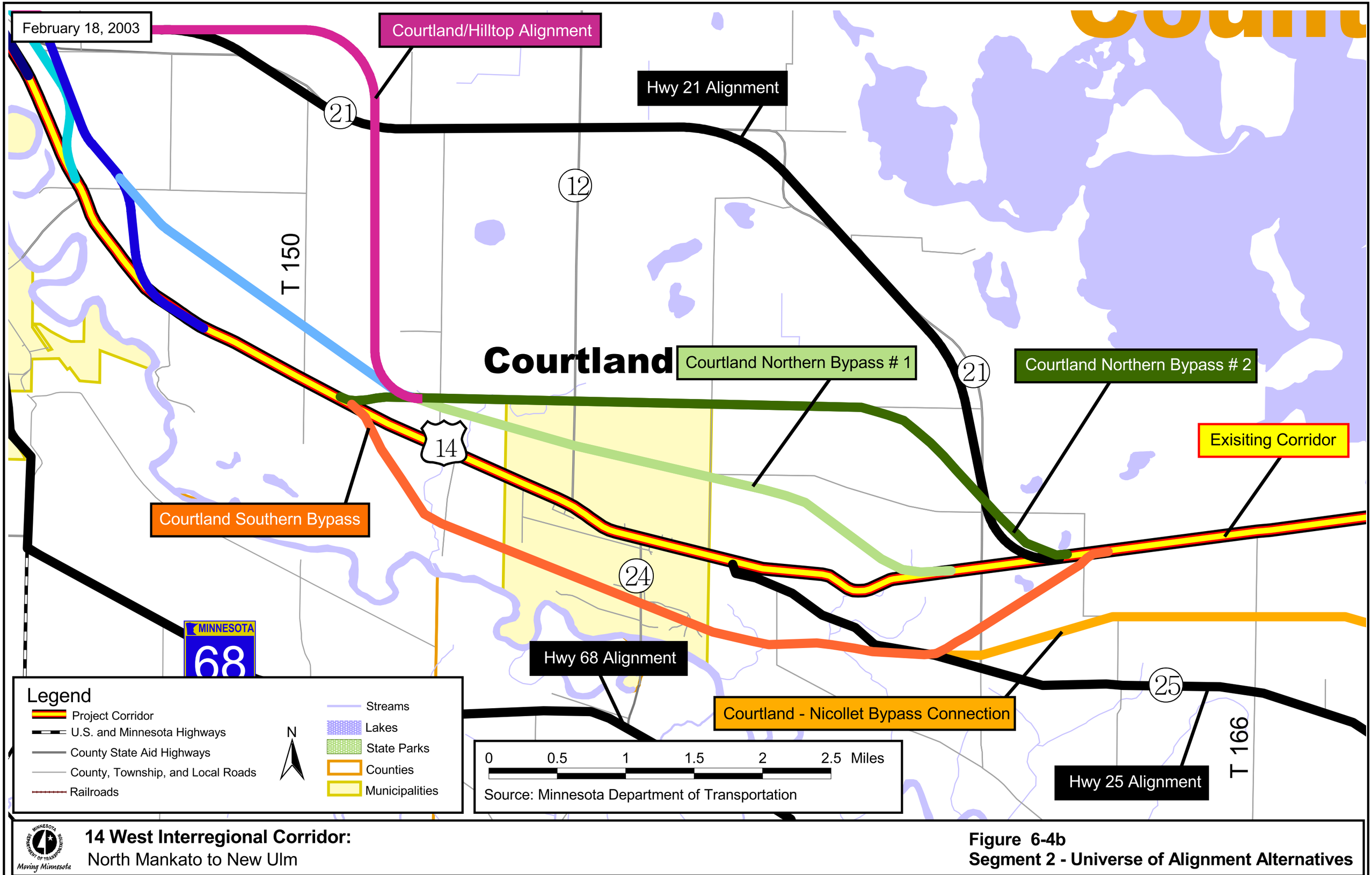
Segment 2 – Courtland, Township Road 150 to Township Road 166

Most of the deficiencies in Segment 2 are located within the City of Courtland, including future congestion, existing and future mobility, access spacing, moderate risk of meeting traffic volume guidelines for signal installation at county highway intersections by Year 2025, and geometric deficiencies. Findings for this segment include:

- There is a high percentage of no passing zones just west of the City of Courtland.
- The results of the origin-destination study show that 50 percent of the traffic on the TH 14 Corridor traveled through the Cities of Courtland and Nicollet, indicating that a bypass of Courtland would be economically feasible.
- The City of Courtland is in support of the realignment of the TH 14 Corridor.

For these reasons, the alternatives for this segment include bypasses of the City of Courtland. Location alternatives for Segment 2 are shown on **Figure 6-4b** and descriptions are as follows:

Existing Alignment – The existing TH 14 alignment is located in the heart of the City of Courtland, separating residential housing on the north from the commercial/retail area on the south.



14 West Interregional Corridor:
North Mankato to New Ulm

Figure 6-4b
Segment 2 - Universe of Alignment Alternatives

Advantages:

- No bluff impacts.
- Limits roadway related impacts to existing alignment.
- Direct connection to corridor for residents and local businesses.

Disadvantages:

- Not expected to meet future mobility goals because of reduced speed within the City of Courtland.
- Difficult to reduce access without constructing a supporting/frontage road system. (Note: Currently, there are 54 accesses per mile in the City compared to Mn/DOT's average of 28 accesses per mile in urbanized areas.)
- Noise impacts due to proximity to residential area
- Potential impacts to structures identified in the State Historic Preservation Office database.
- Inconsistent with community qualities.
- Inconsistent with City Comprehensive Plan.
- Potential for impact to a cemetery to the west of Courtland, adjustments may be needed to avoid cemetery impacts.
- Potential impacts to park facilities in Courtland.
- Although the amount of right-of-way acquisition is relatively small, it would be costly because of potential impacts to existing residential/commercial development adjacent to the roadway.

Courtland Northern Bypass #1 - This alternative relocates the TH 14 roadway approximately one-quarter to one-half mile north of existing TH 14 between T 150 and CSAH 21, following the bluff line within the City limits of Courtland. This bypass location was identified in the City of Courtland Comprehensive Plan, 1999.

Advantages:

- Consistent with City of Courtland Comprehensive Plan.
- Opportunity to limit access through an access management plan.
- Enhanced mobility by relocating the highway away from the lower posted speed limits in the developed area in Courtland.
- Eliminates risk for a traffic signal by moving the roadway from the urbanized to the rural areas where traffic volumes would be lower.
- Consistent with community qualities (moves the highway out of downtown).
- No bluff impacts.

Disadvantages:

- Requires a moderate amount of right-of-way acquisition.
- May have impact on County land use policy for agricultural preservation.
- Limits direct connectivity to TH 68.

Courtland Northern Bypass #2 – This alternative is located along the northern city limits of Courtland approximately one mile north of existing TH 14 from T 150 to just west of CSAH 21. This is approximately a half mile north of Northern Bypass #1.

Advantages:

- Enhanced mobility by relocating the highway away from the lower posted speed limits in the developed area in Courtland.
- Eliminates risk for a traffic signal by moving the roadway from the urbanized to the rural areas where traffic volumes would be lower.
- Opportunity to limit access through an access management plan.
- Consistent with community qualities (moves the highway out of downtown).
- No bluff impacts.

Disadvantages:

- Requires high right-of-way acquisition in undeveloped areas.
- Inconsistent with County land use policy for agricultural preservation.
- Farther from existing businesses in Courtland, resulting in possible adverse economic effects.
- Limits direct connectivity to TH 68.

Hwy 21 Alignment – This alternative follows the CSAH 21 alignment, bypassing the City of Courtland. The western connection of the alternative connects with TH 15 at a location north of the existing connection, relocating the TH 14 / TH 15 / CSAH 21 intersection to an area above the bluff line.

Advantages:

- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Courtland.
- Eliminates risk for a traffic signal in this segment by moving the roadway from the urbanized to the rural areas where traffic volumes would be lower.
- Moves corridor to more level land requiring less cut and fill.

Disadvantages:

- Inconsistent with community qualities.
- Existing residential access along the existing CSAH 21 corridor would require an access management plan to be in place to meet IRC access goals.
- The City of Courtland does not support this alternative because it is located too far from the City most likely resulting in impacts to its economic development.
- Substantial impacts to farmland, wetlands/public waters, and portions of the Swan Lake WMA.
- Circuitous route.
- Expanding the capacity of the roadway from two to four lanes on the existing alignment will create a substantial amount of right-of-way impacts to existing structures especially where the alignment is close to buildings and farmsteads.

Courtland Southern Bypass – This alternative realigns the roadway south of existing TH 14 from T 150 to just east of CSAH 21 as a southern bypass of Courtland. The alignment is located along the top of the ridge between the commercial/industrial area to the north and the residential section to the south.

Advantages:

- Better access to industrial area.
- Direct connectivity to CSAH 24, providing access to TH 68.
- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Courtland.

Disadvantages:

- Not consistent with community comprehensive plan
- Inconsistent with community qualities.
- Potential for noise impacts due to proximity to residential area.
- Divides residential housing on the south from the City's commercial/retail area.
- Requires the greatest amount of right-of-way acquisition in the urban area. Right-of-way impacts may eliminate existing residential/industrial development.
- Potential for high bluff impacts.
- Aesthetic issues for nearby residents with river valley views.
- Potential wetland impacts.
- Moderate signal risk at the intersection with CSAH 24.

Segment 3 – Nicollet, Township Road 166 to CSAH 6

Deficiencies in Segment 3 are located in the City of Nicollet, and include existing and future level of service, intersection safety, existing and future mobility, access, limited passing zones, risk of an intersection meeting one or more traffic signal warrants by Year 2025, and geometric deficiencies. The City of Nicollet is concerned about safety at the intersection of TH 14/TH 11/CASH 23 because a fatal accident occurred there in 2001. The City of Nicollet has indicated support for a south realignment of the TH 14 Corridor to allow for future development to the south of present TH 14. The origin-destination study indicated about half of the vehicles traveling along this Corridor do not have an origin or destination within the City of Courtland or Nicollet but rather pass through the cities. Therefore, the alternatives for Segment 3 include alignments bypassing the City of Nicollet. Location alternatives for Segment 3 are shown on **Figure 6-4c** and descriptions are as follows:

February 18, 2003

Nicollet Northern Bypass

Nicollet Southern Bypass #1

Nicollet

MINNESOTA 111

MINNESOTA 99

T 169

T 179

T 166

72

21

25

23

17

Courtland Southern Bypass

Hwy 25 Alignment

Courtland - Nicollet Bypass Connection

Nicollet Southern Bypass # 2

Hwy 68 Alignment

Exisiting Corridor

77

6

41

Legend

- Project Corridor
- U.S. and Minnesota Highways
- County State Aid Highways
- County, Township, and Local Roads
- Railroads
- Streams
- Lakes
- State Parks
- Counties
- Municipalities

N

0 0.5 1 1.5 2 2.5 Miles

Source: Minnesota Department of Transportation

Moving Minnesota

14 West Interregional Corridor:
North Mankato to New Ulm

Figure 6-4c
Segment 3 - Universe of Alignment Alternatives

Existing Alignment – The existing alignment connects to TH 111 and TH 99 within the southern portion of Nicollet.

Advantages:

- The right-of-way width on the existing alignment may accommodate some expansion.
- Direct access to TH 14 for local businesses and residents.

Disadvantages:

- In order to meet IRC access management guidelines additional frontage roads and access realignments would need to be constructed, which add to the cost of the project.
- Not consistent with City of Nicollet plans for future growth.
- Lower traffic speeds within the City do not meet mobility guidelines.
- Existing access along the existing TH 14 corridor most likely will be an issue suggesting a frontage road system would be needed.
- Geometric and safety deficiencies at TH 14/TH 111/ CSAH 23 intersection.
- Potential for noise impacts to residents.
- Divides the City –inconsistent with community qualities.

Nicollet Northern Bypass – The northern bypass of Nicollet is located along the northern city limit of Nicollet from T 169 on the west to T 179 to the east.

Advantages:

- Opportunity to limit access through an access management plan.
- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Nicollet.
- Improved safety at the TH 14/TH 111/CSAH 23 intersection due to the elimination of the skew angle at the intersection.
- Bypass could include TH 99 so that both highways bypass the City on the same alignment.

Disadvantages:

- Potential for noise impacts to residents.
- Not consistent with community plans.
- Requires the largest amount of right-of-way acquisition in undeveloped areas.
- Economic development impacts-moves corridor away from current commercial/retail area.
- Longer travel distance than southern bypass alternatives.
- Inconsistent with County policy for agricultural land preservation.
- Likely wetland impacts.
- Potential water quality concerns because of proximity to lakes and wetlands.

Nicollet Southern Bypass #1 – This bypass is located on the south edge of the City of Nicollet. The alignment is approximately a half-mile south of the existing TH 14 alignment.

Advantages:

- Allows ample room for expansion of the sewer treatment ponds.
- Improved safety at the intersection of TH 14/TH 111/CSAH 23 due to the elimination of the skew angle at the intersection.
- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Nicollet.
- Opportunity to limit access through an access management plan.
- Consistent with community plans and qualities.
- Viewed by City as best economic alternative since it provides the least inconvenience for commuters and still attracts travelers to local businesses.
- Moderate right-of-way needs.

Disadvantages:

- Potential for noise impacts to residents.
- Potential wetland impacts.
- Farmland impacts.
- Improvements would also need to be made to connect the corridor with TH 111 as required by the Constitutional Trunk Highway Routes.
- May not allow enough room for growth to the south. Because of its relative closeness to existing development, development pressure may cross over the proposed bypass creating a division that is trying to be avoided.
- TH 99 would need to be connected to the new TH 14.

Nicollet Southern Bypass #2 – This alternative is located about 1½ miles south of the existing alignment.

Advantages:

- Allows land for additional growth south of the existing Nicollet city limits.
- Improved safety at the intersection of TH 14/TH 111/CSAH 23 due to the elimination of the skew angle at the intersection.
- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Nicollet.
- Opportunity to limit access through an access management plan.

Disadvantages:

- Requires a moderate amount of right-of-way acquisition in undeveloped areas.
- Potential wetland impacts.
- Potential to impact County land use policy for agricultural land preservation.
- Improvements would also need to be made to connect the corridor with TH 111 as required by the Constitutional Trunk Highway Routes.
- TH 99 would need to be connected to the new TH 14.

Courtland-Nicollet Southern Bypass Connection – If a south bypass alignment was determined to be the best alternative for both the Cities of Courtland and Nicollet, this alternative would connect the two without reconnecting to the existing TH 14 alignment between the two cities. (Note: This alternative is only viable if both cities have a southern bypass.)

Advantages:

- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Nicollet.
- The alignment was developed on half section lines to avoid possible access management issues providing the opportunity to limit access through an access management plan.

Disadvantages:

- Requires a large amount of right-of-way acquisition in undeveloped areas.
- Not consistent with Nicollet County Zoning Ordinance and land use policy.
- Wetland and farmland impacts.
- Improvements would also need to be made to connect the corridor with TH 111 as required by the Constitutional Trunk Highway Routes.

CSAH 25 Alignment – This alternative bypasses Nicollet by using the existing CSAH 25 Corridor.

Advantages:

- Improved safety at the intersection of TH 14/TH 111/CSAH 23 due to the elimination of the skew angle at the intersection.
- Improved mobility by relocating the highway away from the lower posted speed limits in the developed area in Nicollet.

Disadvantages:

- Potential impacts to three cemeteries along CSAH 25.
- Existing residential access along the existing Highway 25 corridor would require an access management plan to be in place to meet IRC access goals.
- Although the amount of right-of-way acquisition is relatively small, there would be impacts to existing development along the roadway.
- Farmland impacts.
- Potential wetland impacts.
- Additional watercourse crossings.
- Improvements would also need to be made to connect the corridor with TH 111 as required by the Constitutional Trunk Highway Routes.
- TH 99 would need to be connected to the new TH 14.

Additional Alternatives

TH 68 Corridor

During the public involvement process, interest was expressed in using the TH 68 Corridor as the main east-west route from New Ulm to Mankato. TH 68 is located south of the Minnesota River, running parallel to TH 14.

Advantages:

- Reuse of existing roadway right-of-way.
- Shortest distance between New Ulm and Mankato.
- Improved mobility because it bypasses all cities.

Disadvantages:

- Currently, TH 68 is not the route of choice for east-west movements in the area. Traffic volumes on TH 68 are 60 to 70 percent lower than on TH 14.
- Widening of TH 68 would risk impacts to wetlands, public waters, and rare, threatened & endangered species.
- Multiple crossings of watercourses and public waters.
- Potential impacts to the State park land at the eastern end of the corridor.
- Expansion of TH 68 is not consistent with any local land use plans. The distance of the corridor from the Cities of Nicollet and Courtland would limit their potential for commercial development and economic growth.
- Economic impacts would be faced by trucking companies within the region. According to a survey completed by the Region Nine Development Commission, TH 68 is not a preferred route.
- TH 68 would require a large amount of cut and fill because of the geography of the area.
- Improvements would also need to be made to connect the corridor with TH 111 as required by the Constitutional Trunk Highway Routes.
- TH 68 is rated a suitable bicycle route because of its low volume of traffic and its scenic views.
- Existing access along TH 68 would require frontage roads and/or access closures/relocations to meet the IRC access guidelines.

Location Alternative Recommendations

It is recommended that the following location alternatives be carried forward for comparison purposes and/or because they most closely meet the purpose and need for the project, including:

- Reduce crashes and increase capacity by expanding to four lanes.
- Consistent with local land use planning.
- Consistent with Mn/DOT IRC plans.

Segment 1:

- Existing Alignment
- River Valley Alignment
- Hwy 14/15 Top of Bluff Alignment

- Hwy 14/15/37 Top of Bluff Alignment
- Courtland Top of Bluff Alignment

- Segment 2:
  - Existing Alignment
  - Courtland Northern Bypass #1
  - Courtland Northern Bypass #2

- Segment 3:
  - Existing Alignment
  - Nicollet Southern Bypass #1
  - Nicollet Southern Bypass #2

It is recommended that the following location alternatives should be dismissed because:

- Inconsistent with local land use plans for growth in Courtland and Nicollet.

- Segment 1:
  - Hwy 21 Alignment
  - Courtland/Hilltop Alignment

- Segment 2:
  - Hwy 21 Alignment
  - Courtland Southern Bypass

- Segment 3:
  - Nicollet Northern Bypass
  - Courtland-Nicollet Southern Bypass Connection
  - Hwy 25 Alignment

- Other: Hwy 68 Alignment should be dismissed because:
  - Would not address any documented TH 14 deficiencies.
  - Is not a reasonable alternative route for east-west travel in the area because current traffic volumes on TH 68 are 60 to 70 percent less than on TH 14.

SUMMARY OF DESIGN AND LOCATION ALTERNATIVES TO INCLUDE IN THE SCOPING DECISION DOCUMENT

All of the information in this Scoping Document is provided to help in the decision-making process and to provide full disclosure to the agencies and public affected by the improvements. Mn/DOT has reached some tentative decisions on the scope of the project based on the advantages and disadvantages of each of the alternatives discussed earlier in this chapter and how each meets the purpose and need for the project. More information is provided in the Draft Scoping Decision Document on the rationale for carrying forward and/or dismissing alternatives as well as figures showing the retained alternatives. During the Scoping process, Mn/DOT is soliciting public and agency input to finalize the Scoping Decision.

Based on the purpose and need for the project, it is recommended to **carry forward** the following alternatives into the Scoping Decision Document for in-depth review in a future Environmental Impact Statement:

Design Alternatives:

- Four-Lane Urban
- Four-lane Rural

Location Alternatives:

- Segment 1:
  - Existing Alignment
  - River Valley Alignment
  - Hwy 14/15 Top of Bluff Alignment
  - Hwy 14/15/37 Top of Bluff Alignment
  - Courtland Top of Bluff Alignment
- Segment 2:
  - Existing Alignment
  - Courtland Northern Bypass #1
  - Courtland Northern Bypass #2
- Segment 3:
  - Existing Alignment
  - Nicollet Southern Bypass #1
  - Nicollet Southern Bypass #2

It is also recommended that the following alternatives be **dismissed** from further consideration:

Design Alternatives:

- Two-lane Rural

Location Alternatives:

- Segment 1:
  - Hwy 21 Alignment

- Courtland/Hilltop Alignment

- Segment 2:
  - Hwy 21 Alignment
  - Courtland Southern Bypass
- Segment 3:
  - Nicollet Northern Bypass
  - Courtland-Nicollet Southern Bypass Connection
  - Hwy 25 Alignment
- Other: Hwy 68 Alignment

6.6 COST ESTIMATE

The preliminary estimated costs include roadway construction and right-of-way acquisition for those alternatives recommended for further consideration. The estimated costs are shown on **Table 6-1**. The detailed cost estimate is in **Appendix A.** If any alternatives are added during the Scoping process, cost estimates will be prepared for them.

The estimated roadway construction costs range from $48.7 million to $51.3 million, depending on the roadway design, the alignment location of the roadway and anticipated right-of-way impacts. These costs assume all access to TH 14 is via at-grade intersections.

There is the possibility that some intersections have the potential for either interchanges or grade separations since some have a high probability of having traffic volumes exceed the guidelines for signal installation in the near future. Based on recent experience, it is anticipated that an interchange would cost approximately $5 million and a grade-separation would be approximately $1 million.

Table 6-1
Preliminary Cost Estimates (2003 dollars)

Segment	Alt.	Existing Alignment Alternatives	Roadway Length (miles)	Total Project Cost (million $)
1	A	No-Build (Rural Two-Lane)	4.1	$0.0
	B	Existing Alignment (Rural Four-Lane)	4.1	$9.1
	N1	River Valley Alignment (Rural Four-Lane)	4.1	$9.3
	N2	Hwy. 14/15 Top of Bluff Alignment (Rural Four-Lane)	4.3	$10.3
	N3	Hwy. 14/15/37 Top of Bluff Alignment (Rural Four-Lane)	4.2	$10.7
	N4	Courtland Top of Bluff Alignment (Rural Four-Lane)	4.1	$10.6
2	A	No-Build (Urban Two-Lane, Courtland)	7.3	$0.0
	B	Existing Alignment (Urban Four-Lane, Courtland)	7.3	$16.4
	N1	Courtland Northern Bypass #1 (Rural Four-Lane)	7.3	$17.1
	N2	Courtland Northern Bypass #2 (Rural Four-Lane)	7.2	$17.2
3	A	No-Build (Urban Two-Lane, Nicollet)	10.4	$0.0
	B	Existing Alignment (Urban Four-Lane, Nicollet)	10.4	$23.4
	S1	Nicollet Southern Bypass #1 (Rural Four-Lane)	10.2	$23.1
	S2	Nicollet Southern Bypass #2 (Rural Four-Lane)	10.3	$23.4
1-2-3		Minimum Cost Alignment (1B-2B-3S1)	21.7	$48.6
1-2-3		Maximum Cost Alignment (1N3-2N2-3B)	21.9	$51.3

Notes:

1.) Road costs are based on an average cost of $2.0 Million per mile for 4-lane roadways with additions for right-of-way acquisition, drainage, and grading.
2.) Segment 1 is defined along TH 14 as TH 15 to Township Road 150, just west of Courtland.
3.) Segment 2 is defined along TH 14 as Township Road 150, just west of Courtland, to Township Road 166, midway between Courtland and Nicollet.
4.) Segment 3 is defined along TH 14 as Township Road 166, midway between Courtland and Nicollet, to CSAH 6, west of North Mankato.
5.) All alternatives include construction costs for the proposed new alignment, where applicable, and reconstruction of the existing alignment.
6.) No-Build alternatives do not include normal maintenance costs or projects to maintain the existing roadway.
7.) All costs represented are in 2003 dollars.