



I-11 NORTHERN NEVADA  
ALTERNATIVES ANALYSIS

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# Potential Effects of Highway Bypasses on Local Communities

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*Prepared for*



Nevada Department of Transportation



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# Acronyms and Abbreviations

I	Interstate
L RTP	Long Range Transportation Plan
NDOT	Nevada Department of Transportation
NEPA	National Environmental Policy Act
PEL	Planning and Environmental Linkages
SR	State Route
US	United States

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# 1. Introduction

The Nevada Department of Transportation (NDOT) is developing the *One Nevada Transportation Plan*, an update to the State's federally required Long Range Transportation Plan (LRTP). A key project to be advanced within the 20-year *One Nevada Transportation Plan* horizon is Interstate 11 (I-11), a proposed high-capacity north-south transportation corridor envisioned to link Mexico and Canada through Arizona and Nevada. The LRTP will develop a list of prioritized improvements to the statewide transportation system, of which implementation of the I-11 Corridor is likely to be constructed incrementally, balanced with other statewide needs.

The I-11 Northern Nevada Alternatives Analysis effort will evaluate specific corridor alternatives linking Las Vegas and I-80, and document issues, opportunities, and constraints in a Planning and Environmental Linkages (PEL) document to lay the groundwork for future National Environmental Policy Act (NEPA) studies.

## 1.1 Report Purpose

As a supplement to the PEL analysis, this memorandum provides a summary of potential effects (both positive and negative) that may result from a new interstate corridor bypassing local towns, relying on a literature review of experiences throughout the US. This paper will assist NDOT in assessing whether the transportation benefits of constructing a bypass, outweigh the potential impacts of bypassing a community, or communities, along the I-11 corridor.

The intent of this review is mostly focused for communities along US 95 between Las Vegas and Tonopah, where I-11 is anticipated to be generally co-located with the highway, due to adjacent terrain and land management constraints. The potential exception to this is the communities located along US 95, where the existing highway often functions as a "main street" with local business access, on-street parking, and slower speed limits. Bypasses may be explored to preserve the mobility functionality through these communities with added I-11 traffic.

## 1.2 I-11 Corridor Purpose and Need

The I-11 Corridor has the potential to become one of the first north-south, high-capacity routes through the Intermountain West that could greatly improve commerce, tourism, and international trade opportunities across the West. This Northern Nevada segment of I-11 would connect Las Vegas and I-80 on the western side of the state, providing an efficient north-south interstate connection near Nevada's two largest economic centers. The need for I-11 is based on a combination of factors that include legislation, system linkage, domestic and international trade, modal interrelationships, capacity, economics, and public policy.

A major tenant of the purpose of I-11 is to assist in diversifying the state's economy to target industry clusters that rely heavily on interconnected and efficient transportation systems to transport goods and facilitate business attraction/retention. Thus, connecting major economic centers with a solid employment base is a major factor in the success of the corridor.



## 2. I-11 Alternatives

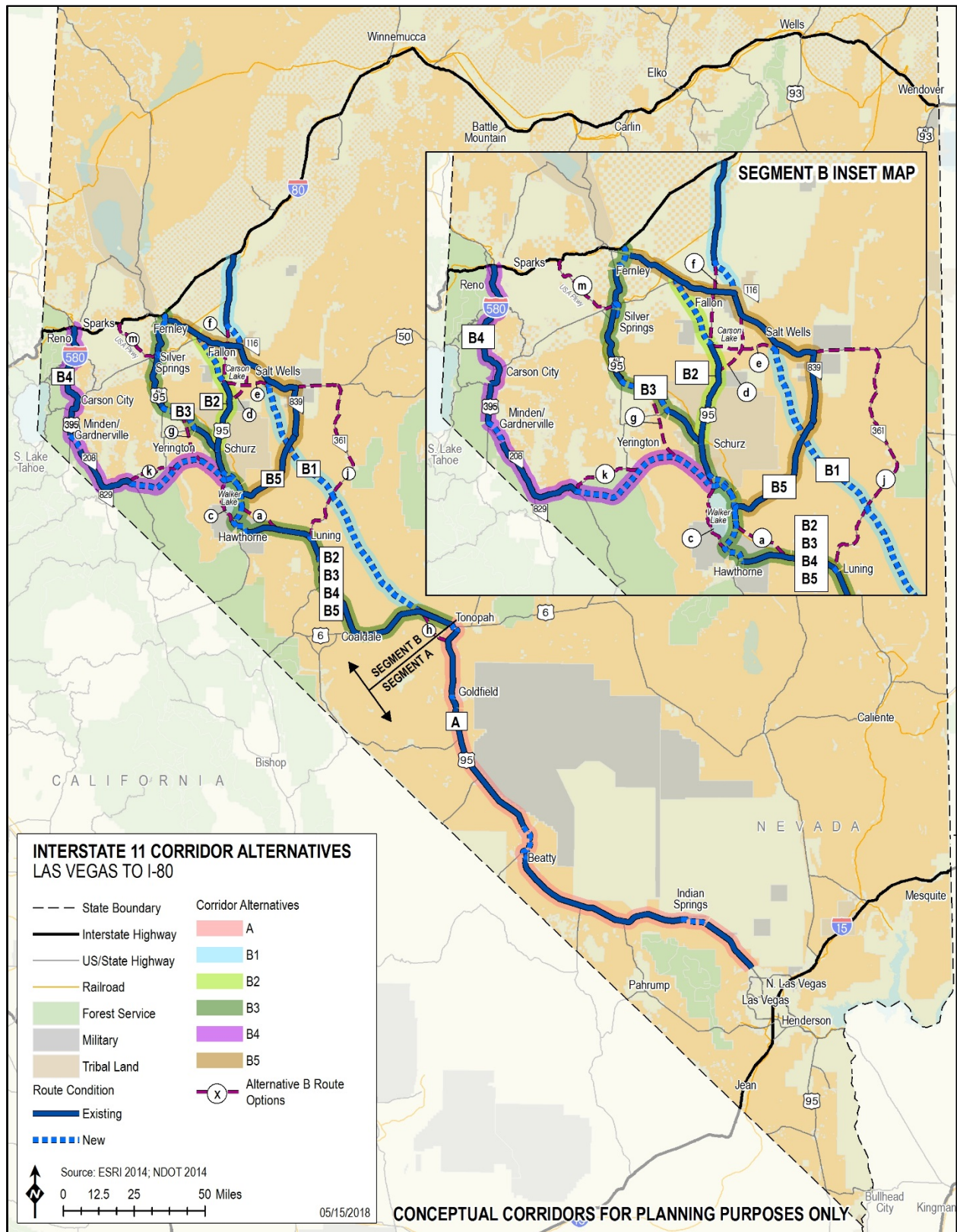
The I-11 Northern Nevada Alternatives Analysis Study Area extends from Las Vegas north approximately 450 miles to I-80 in western Nevada, spanning 10 counties and including many local communities. A series of corridor alternatives have been developed connecting Las Vegas with I-80. They are split in two segments (Segment A and Segment B). Segment A spans from Las Vegas to Tonopah, in which only one corridor is under consideration as the future I-11 Corridor (US 95 corridor with various improvements). Five corridor alternatives are located within Segment B, all beginning at US 95 in Tonopah to make connections with I-80 at three locations. A map of the alternatives is presented in **Figure 1**, with accompanying descriptions in **Table 1**.

**Table 1. I-11 Corridor Alternatives**

Alternative	Description
<b>Route A1</b> Las Vegas to Tonopah	The corridor alternative would follow existing US 95 between Las Vegas and Tonopah. New corridors are proposed for review at the towns along the alternative (Indian Springs, Beatty, Goldfield, and Tonopah) as options for providing a limited-access transportation facility that directly serves, but does not displace, local communities.
<b>Route B1</b> Tonopah to I-80 Fallon Interchange	This is a new corridor from US 95 west of Tonopah to US 50 east of Salt Wells. From Salt Wells, the alternative follows the existing US 50 to the intersection with SR 116. A new corridor connects US 50 to US 95 northeast of Fallon, following US 95 at the most northern end, connecting to an existing interchange at I-80. <i>This alternative was developed as a shortest route from Tonopah to I-80 and US 95 via Fallon.</i>
<b>Route B2</b> Tonopah to I-80 Fernley Interchange	This alternative follows US 95 through Coaldale north past Luning. A new corridor bypasses the town of Hawthorne and runs along the east side of Walker Lake. The corridor connects with US 95 north of Walker Lake to Fallon. A new corridor bypasses Fallon to connect with US 50 ALT north to I-80 and Fernley. <i>This is the most direct route to I-80 that follows existing highways as much as possible.</i>
<b>Route B3</b> Tonopah to I-80 Fernley Interchange	This alternative follows US 95 through Coaldale north past Luning. A new corridor bypasses the town of Hawthorne and runs along the east side of Walker Lake (same as Route B2). The corridor connects with US 95 north of Walker Lake to Schurz where the corridor deviates from B2 to follow US 95 ALT to I-80 and Fernley. New corridor segments will bypass Yerington, Sliver Springs, and Fernley. <i>This alternative follows existing highways as much as possible, and was developed to minimize impacts on tribal lands.</i>
<b>Route B4</b> Tonopah to I-80 Reno Interchange	This alternative follows Routes B2 and B3 along US 95 past Walker Lake/Hawthorne. Route B4 deviates north of Walker Lake to a new corridor that travels west and connects to SR 829 and follows SR 208 west to US 395, continuing along US 395 north to Carson City with a bypass around Minden/Gardnerville. At Carson City, the corridor follows I-580 north to its interchange with I-80. <i>This alternative was developed to minimize impacts on tribal lands and to connect I-11 directly to Reno via Carson City.</i>
<b>Route B5</b> Tonopah to I-80 Fernley Interchange	This alternative follows Routes B2, B3, and B4 along US 95 through Walker Lake/Hawthorne. Route B5 deviates east of Walker Lake to SR 839, which travels northeast to US 50. SR 839 follows low elevation passes through the mountain range and is paved for the northernmost 18 miles and mostly unimproved or requiring new corridor development for the approximately southern 37 miles. The corridor connects US 50, US 95, and US 50A to connect to I-80 at Fernley. <i>This alternative responds to public comment..</i>



Figure 1. I-11 Corridor Alternatives



Through the PEL process, each alternative will be rated and scored based on nine evaluation categories, including modal relationships, capacity/travel times and speeds, economic vitality, transportation plans and policies, environmental sustainability, land use and management, cost, technology, and community acceptance. The purpose of the evaluation is to narrow down the reasonable and feasible range of corridor alternatives for further planning and environmental review (to be completed in future work efforts) as part of the continued I-11 project development process.

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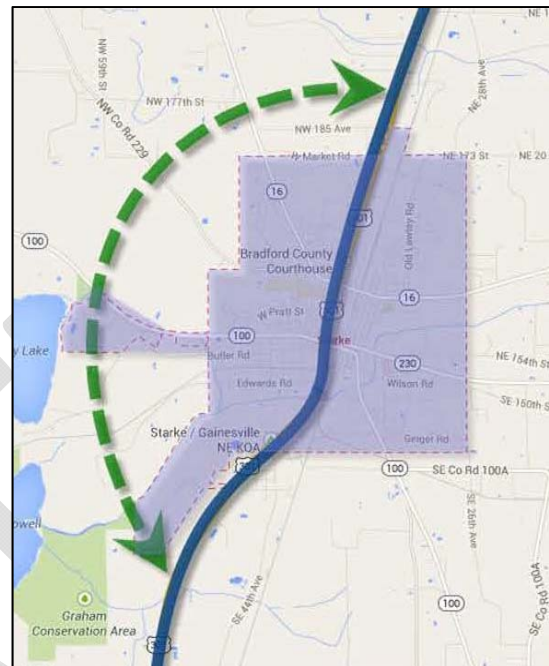
# 3. Highway Bypass Evaluation

Highway bypasses re-route traffic around communities (Figure 2). They provide an alternate route for through traffic, typically on an access-controlled facility, which does not allow intersections with local streets or driveways. Access to towns is generally provided via traffic interchanges on one or both ends of a community. Bypasses are intended to reduce local congestion and improve mobility, increase roadway safety, reduce effects from heavy truck traffic, improve travel time, and improve access locally.

Local communities have varying concerns about the potential effects of a bypass, from quality of life issues, changes in land use and development patterns, to impacts to the local economy. Residents are often opposed to the concept of a bypass around their community, and instead advocate for a highway to be constructed through the community.

The goal of I-11 is not to negatively impact any communities along the corridor, but rather complement community development. By planning for future corridor development in advance, communities can be active stakeholders in the decision-making process, as well as proactively update general plans, zoning maps, and economic development strategies.

Figure 2. General Highway Bypass Concept



Source: FDOT, 2014

## 3.1 Northern Nevada Context

The area between Las Vegas and I-80 is sparsely populated, consisting of small towns that support mining, solar, recreation, and military operations. In many cases, when US 95 passes through a local community, the footprint of the roadway narrows (one or two lanes in each direction, no median), speeds decrease, and “stop and go” traffic occurs due to stop signs, traffic signals, and driveway access, increasing overall travel times. Improving the existing highway to meet interstate standards has the

potential to remove many of the residences and commercial operations along the highway – counteracting the purpose of I-11 to bolster local economies.

Figure 3. US 95 through Beatty, NV



## 3.2 Literature Review

To understand the reality of highway bypasses on rural, local communities, a literature review was conducted to understand experiences of others. It was found that most of the research around the country generally provides a consistent story: highway bypasses are seldom either





devastating or the savior of a community business district. The locational shift in traffic can cause some existing businesses to turn over or relocate, but net economic impacts on the broader community are usually relatively small (positive or negative), unless communities are already in a state of economic decline. Communities and business districts that have a strong identity as a destination for visitors or for local shoppers are the ones that are most likely to be strengthened due to the reduction in traffic delays through their town centers.

The studies have found that highway bypasses can provide numerous direct transportation benefits, but that the potential impacts on the local economies are harder to identify and quantify. Direct impacts to land use include removal of existing buildings and infrastructure. Indirect impacts occur over time, can be cumulative, and may result in changes in growth and land use development patterns. The following sub-sections provide summary-level findings of the most relevant studies to I-11 Corridor planning.

### 3.2.1 California Bypass Study (2006)

The California Bypass Study (System Metrics Group, 2006) found that in general, bypasses impact the local economy as a function of the type of traffic affected. Businesses in communities with heavy local traffic or with through traffic that does not stop will not be impacted. Communities that provide services to pass-through traffic are more likely to be impacted. The study found that:

- Highway-oriented towns have a more difficult time transitioning their economies after bypasses are constructed than communities that cater to residents or offer tourist attractions.
- Residential communities or towns with tourist destinations can benefit from highway bypasses through reduced traffic and improved safety. Local government and businesses may need to engage in complementary efforts, such as marketing, downtown redevelopment, additional parking and pedestrian improvements, to maximize the benefits of the reduction in traffic.
- Towns that serve regional markets by providing services, such as big box retail, automobile dealers, department stores, or hospitals, may experience little or no economic impacts. If a bypass provides better access to regional services, the local economy may improve as the town expands its regional attraction.
- Towns with a diverse economic base, such as government employment, mining, agriculture, manufacturing, etc. are not likely to be economically impacted by bypasses.

The study also assessed which types of business are affected by bypasses and found that businesses with the most potential to be affected are those that serve pass-through traffic, such as gas stations and fast food restaurants. However, travel-related businesses can relocate to the bypass. Visitor-serving businesses, such as motels, art galleries, and antique stores are less likely to be negatively affected and may improve if the downtown becomes a more attractive destination. Regionally serving businesses such as big box retail may benefit from improved access and businesses that serve residents, such as drug stores, banks, and grocery stores are generally not impacted by bypasses.

### 3.2.2 Effects of Highway Bypasses on Rural Communities and Small Urban Areas (1996)

The Transportation Research Board National Cooperative Highway Research Program conducted a study to understand the effect highway bypasses have on communities, specifically those smaller and rural in nature. The study found that overall, it is difficult to quantify the true impact of highway bypasses on local communities. The perceived effect is often stronger than the true economic impact.



- In general, business activity generally grows with development of a bypass. Immediately following construction, there is often a transition period of declining sales or relocation of traffic-dependent services (fast food, gasoline), but eventually, downtown areas see greater growth in business sales due to decreased congestion, noise, and pollution.

Older bypassed routes may suffer some loss of sales, but in many cases, declining sales or other indicators of adverse impact are attributable to broad demographic and economic trends unrelated to the highway bypass.

- Land values tend to increase both along the bypass and along the old route, supporting increases in business activity.
- Communities that are unable to extend their political boundaries to encompass new development along the bypass may feel a greater economic impact.

### 3.2.3 The Economic Impacts of Highway Bypasses on Communities (1998)

The Wisconsin Department of Transportation conducted research to identify the economic impacts on the 17 communities that have been bypassed. The results of this study are intended to help the agency and communities realize the full benefit of future bypasses while minimizing the potential for adverse impacts. The major findings of this analysis include:

- There is little evidence that bypasses adversely impact the overall economies of most communities. Most bypass communities had significant economic growth occurring before the bypass was constructed. This growth was one of the reasons the bypasses were needed. Smaller communities have a greater potential to be impacted economically by a bypass, especially if the community is already in a state of economic decline.
- Over the long term, average traffic levels on “old routes” in medium (2,000 -5,000 residents) and larger (more than 5,000 residents) communities are close to pre-bypass levels. Smaller communities saw much greater decreases in traffic on the old route after the bypass opened. In almost all cases, both the bypass and the old route are being utilized, but for different markets.
- Communities consider their bypasses to be beneficial overall, while understanding that a bypass brings many changes for a community and businesses and need to be addressed proactively to ensure the most benefits and least adverse impacts.

### 3.2.4 The Economic Impact of Rural Highway Bypasses (1995)

A study for the Iowa Department of Transportation examined 11 communities where highway bypasses had been constructed to determine the impact of the bypass on the local communities, post-construction. Specific attention was paid to the effect of retail sales and the perceptions of those business owners. Major findings included:

- Overall levels of retail sales in a community are not significantly affected by the presence of a bypass.
- The benefits of an improved flow of traffic from bypasses around rural communities along a transportation corridor does not appear to be offset by losses of retail sales. Businesses serving the local trade area and those dependent on repeat customers are likely to benefit from an improved downtown shopping environment. A transfer among individual business owners appears to be occurring in these communities where certain businesses along the old highway close and others open along the new bypass. Over time, most businesses appear to be adjusting to the new situation and report being in favor of the bypass.



- Most of the respondents favored the bypass. Regardless of their location, most business owners agreed that the traffic volume and noise had decreased since the bypass. They reported that the shopping environment and accessibility of suppliers and delivery trucks to their place of business had improved or not changed since the opening of the bypass.

### 3.2.5 Economic Effects of Highway Bypasses on Business Activities in Small Cities (1992)

The Center for Transportation Research of The University of Texas at Austin, in cooperation with the Texas Department of Transportation and the Federal Highway Administration, attempted to identify the primary economic impacts of highway bypasses on business activities in small Texas cities, focusing on cities: whose population was between 2,500 and 25,000 at the time of bypass construction, were only bypassed by one route, and the bypass only re-routed around one town at a time. Based on these conditions, the analysis of 23 bypassed cities and towns concluded that the bypass is one small variable among a variety of more important factors affecting the economics of small towns and cities. Specific conclusions include:

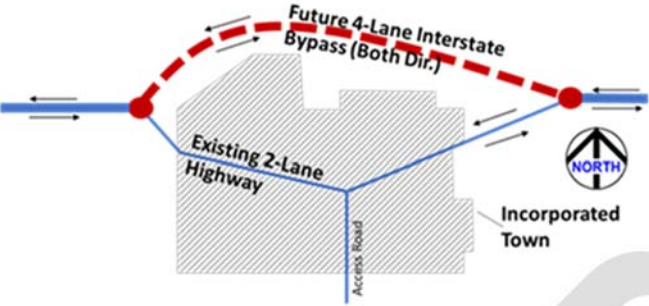

- A highway bypass will be viewed as a positive development by local citizens if the reduction in through traffic (especially heavy vehicles) on major streets improves traffic flow and local access. Other positive consequences of bypasses include improved safety and cleaner air.
- A highway bypass may reduce business volumes in small rural cities. However, many other important local factors appear to affect business activities more dramatically, including fluctuations in the agriculture or oil business, continued urbanization trends, and the establishment of large discount stores within the market area. Thus, business communities will respond in various ways to a bypass, with the specific response depending on local characteristics.

## 3.3 Bypass Concepts

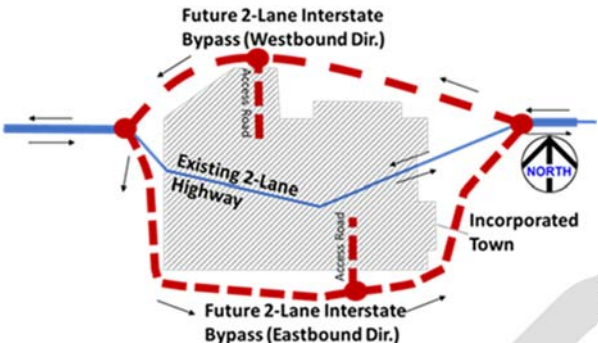
As noted from the literature review, smaller and more rural communities may feel the effects of new interstate highway construction more than larger communities with a more diversified economic base. Therefore, in exploring the option of improving an existing highway versus constructing a bypass, it is important to consider what type of configuration is most appropriate and can best complement the local economy. **Table 2** illustrates and describes the advantages and disadvantages of each.



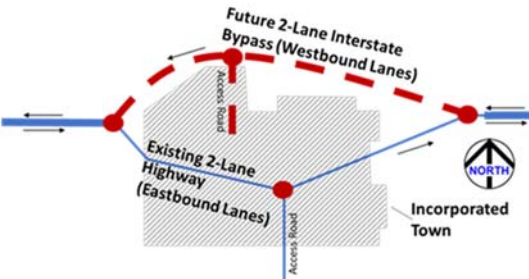
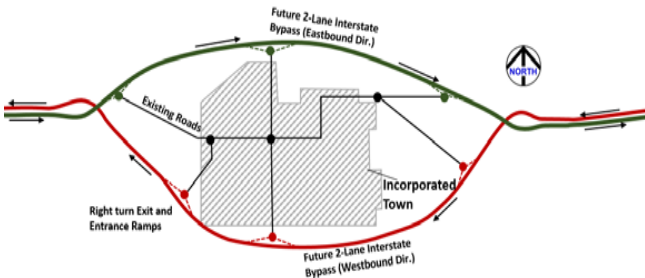
**Table 2. Freeway Bypass Configuration Concepts – Community Effects**

Bypass Concept	Advantages	Disadvantages
<p><b>Concept A: Freeway Bypass</b></p> <ul style="list-style-type: none"> <li>Future 4-lane interstate corridor bypasses town on one side, with connections to old corridor via traffic interchanges on each end of town</li> </ul> 	<ul style="list-style-type: none"> <li>Improved traffic flow and local access through town</li> <li>Reduced congestion, noise, and emissions through town</li> <li>Creates opportunities for downtown revitalization</li> <li>Eliminates long-distance freight traffic through town</li> <li>Reduced delays and increased safety at railroad crossings and school zones</li> <li>Increased overall safety of old corridor for vehicles, pedestrians, and bicyclists</li> <li>Potential to increase sales revenues through new/ relocated development along new corridor</li> </ul>	<ul style="list-style-type: none"> <li>Potential community and environmental impacts along new corridor development (e.g. change in land use, development pattern)</li> <li>Reduced visibility of highway-dependent commercial/retail establishments through town, resulting in potential business closures or relocations</li> <li>New manner of access to town – could be confusing to drivers; traffic interchanges on both ends of town connecting to old corridor</li> <li>New/relocated development may require access to new service infrastructure (e.g., water, sewer)</li> </ul>
<p><b>Concept B: Freeway through Town</b></p> <ul style="list-style-type: none"> <li>Conversion of existing highway to interstate standards, including high degree of access control via traffic interchanges</li> </ul> 	<ul style="list-style-type: none"> <li>Corridor stays on existing route</li> <li>Maintain existing business visibility</li> <li>Improved safety with limited access corridor</li> <li>No new environmental impacts on the perimeter of town</li> </ul>	<ul style="list-style-type: none"> <li>Widening required to implement an interstate highway has the potential to displace properties/businesses along existing route</li> <li>Reduced access along existing route; driveways and intersecting streets would not directly connect to interstate; access managed through traffic interchanges</li> <li>Potential to impact community cohesion on both sides of new corridor</li> <li>No opportunities for downtown revitalization</li> </ul>

**Table 2. Freeway Bypass Configuration Concepts – Community Effects**

Bypass Concept	Advantages	Disadvantages
<p><b>Concept C: Bidirectional Freeway Bypass</b></p> <ul style="list-style-type: none"> <li>Future 4-lane interstate corridor bypasses town on both sides (2 lanes/direction), with connections to old corridor via traffic interchanges</li> </ul> 	<ul style="list-style-type: none"> <li>Similar advantages to Concept A</li> </ul>	<ul style="list-style-type: none"> <li>Potential community and environmental impacts along development of two new corridors (e.g. change in land use, development pattern)</li> <li>Reduced visibility of highway-dependent commercial/retail establishments through town, resulting in potential business closures or relocations</li> <li>New manner of access to town – could be confusing to drivers; traffic interchanges connect to new access roads, which may be confusing to drivers and do not require drivers to traverse old corridor through town</li> <li>New/relocated development may require access to new service infrastructure (e.g., water, sewer)</li> </ul>
<p><b>Concept D: Combined Existing and Bidirectional Freeway Bypass</b></p>	<ul style="list-style-type: none"> <li>Upgraded existing route through town</li> <li>Maintain business visibility</li> <li>Improved traffic flow for through traffic</li> <li>Improved safety with limited access corridor</li> <li>Potential to increase sales revenues through new development along new corridor</li> </ul>	<ul style="list-style-type: none"> <li>Potential community and environmental impacts along new corridor (e.g. change in land use, development pattern)</li> <li>Changes to existing route have the potential to displace properties/businesses along existing route</li> <li>Traffic on existing highway is limited to one direction through town; reduced access to accommodate one-way traffic (driveways and intersecting streets)</li> <li>Potential to impact community cohesion on both sides of upgraded existing route</li> </ul>

**Table 2. Freeway Bypass Configuration Concepts – Community Effects**

Bypass Concept	Advantages	Disadvantages
<ul style="list-style-type: none"> <li>Future 2-lane interstate corridor bypasses town on one side (one direction), with connections to existing corridor via traffic interchanges combined with existing 2-lane highway through town (one direction)</li> </ul> 		<ul style="list-style-type: none"> <li>More limited opportunities for downtown revitalization</li> </ul>
<p><b>Concept E: Bifurcated Freeway Bypass with Right-Turns to and from the Community</b></p> <ul style="list-style-type: none"> <li>Future 4-lane interstate corridor bypasses town on both sides (2 lanes/direction), with connections to old corridor via traffic interchanges that allow right-turn access to and from the interstate and community</li> </ul> 	<ul style="list-style-type: none"> <li>Similar advantages to Concept A</li> <li>Access and connectivity between old corridor and new corridor available via right-turns</li> </ul>	<ul style="list-style-type: none"> <li>Significant transportation infrastructure required.</li> <li>Potential community and environmental impacts along two new corridors (e.g. change in land use, development pattern)</li> <li>More substantial change to community character</li> <li>Reduced visibility of highway-dependent commercial/retail establishments through town, resulting in potential business closures or relocations</li> <li>New/relocated development may require access to new service infrastructure (e.g., water, sewer)</li> </ul>

## 3.4 I-11 Bypass Considerations

The PEL process is completing a high-level screening of alternatives based on a variety of factors. At this PEL level of study, alternative corridors can represent a wide swath of land up to five-miles wide. The key consideration of these broad alternatives is the connections they make from point A to point B to point C, with an understanding of potential environmental, social, and engineering constraints. Subsequent studies will develop and evaluate specific alignments within the recommended corridor(s). At that time, the configuration of a route through or around local towns (e.g., implementation of a bypass) will be analyzed.

Factors to be considered in subsequent analyses include:

- **Travel conditions:** understanding the existing and forecasted traffic conditions on the corridor, including traffic volumes, percent pass-through freight traffic, speed limits, access conditions, and bottlenecks (e.g., traffic lights/stop signs, school zones, etc.) to determine the best route for the improvement.
- **Community goals:** understanding the types of growth and development each community would like to maintain, enhance, and/or develop and determine compatibility with the improved transportation corridor. May require update to zoning and long-range land use plan (general or comprehensive plan, economic development plan) to establish parameters for appropriate types of development in different locations.
- **Land use and land management patterns:** in conjunction with the community goals, understanding land management patterns surrounding the community. Some communities may welcome the expansion of available land area for new development along a new corridor, whereas other communities may want to retain highway-dependent businesses in town and will want to restrict new development along the bypass (e.g., not allow any new development along new route for economic reasons, environmental reasons, or for other considerations).
- **Employment base:** understanding how much of the community's employment and business revenues rely upon highway-dependent business traffic.
- **Community cohesion:** understanding the local impacts of developing a new interstate corridor through or around town regarding access, circulation (vehicular, pedestrian, bicycle), and the potential to segregate neighborhoods/community features.
- **Tourism:** many small communities rely on tourism revenues as a major source of economic success. Understanding what attracts visitors and how visitor populations can be maintained and/or improved.
- **Mitigation:** understanding what measures can be put in place to maintain economic success of the community, including appropriate access, signage, and advertising.

## 3.5 Summary

The literature suggests that as a transportation investment, highway bypasses have various impacts on small communities. In many cases, the economic impact is much more positive than originally perceived by a community. When it is not, the bypass is usually just one of many contributing factors to a declining economy.



A consistent theme in successful local highway versus interstate bypass case studies is community preparation – updating land use plans to facilitate appropriate growth (where, what types), ensuring easy access to and from the community/interstate, constructing appropriate signage and advertising, etc.

Before deciding if the I-11 Corridor will bypass or go through a town, several factors should be considered (Section 3.3), including local community input to understand concerns and potential opportunities. There is no “one size fits all” solution. Each community along the corridor contributes something different to the regional economy, such as eco-tourism, military presence, or national park access – and therefore each solution may be different.

The more detailed consideration of bypass options will not occur during this PEL effort, which is a high-level review of corridor alternatives within this wide study area. A “corridor” is a relatively broad (potentially several miles wide) route that connects point A to point B to point C in a relatively efficient manner while addressing large-scale constraints like topography. The corridor typically is wide enough such that, multiple potential paths or “alignments” could be identified and potentially developed within the corridor, which will occur during the next phase of project development: a NEPA study.

The best opportunity to be proactive in corridor planning is before a NEPA action begins. Local communities can investigate individual preferences for what will benefit the community the best from a land use, economics, and mobility perspective, and update local plans (General Plan, Economic Development Plan, zoning plan, etc.) to reflect this preference and set the foundation for future development and land use changes.





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