

CHAPTER 2

Alternatives Considered

This chapter provides an overview of the four First Tier Strategies and the Preferred Strategy for improvements to the I-70 FTEIS Study Area.

Chapter 2 of the **Draft FTEIS** includes a discussion of the concepts and initial strategies that were considered during the early part of the study, the process used to narrow the initial strategies down to four First Tier Strategies, discusses the more detailed evaluation process of the four First Tier Strategies, and why the Preferred Strategy was proposed.

2.1 Initial Strategy Development

The Study Team combined various concepts to develop 15 Initial Strategy Packages based on initial engineering and environmental analysis, MARC's Congestion Management System (CMS) toolbox, as well as comments and feedback from local agencies, stakeholders, and the public. The first seven strategy packages evolved from the previously completed I-70 Major Investment Study (MIS). Eight other packages were focused goal oriented strategy packages meant to address specific needs or issues along I-70. **Section 2.1** of the **Draft FTEIS** describes each of the 15 Initial Strategy Packages.

2.2 First Tier Strategies Development

The 15 Initial Strategy Packages were evaluated against the purpose and need for improving I-70:

- Improve Safety
- Reduce Congestion
- Restore and Maintain Existing Infrastructure
- Improve Accessibility
- Improve Goods Movement

More detailed information on the purpose and need for improving I-70 is in **Chapter 1**. The Study Team also

What is a concept?

A concept is a single idea for solving a transportation issue in the I-70 corridor. Several concepts joined together make an improvement strategy.

considered engineering issues and impacts to the human environment, the natural environment, and the cultural resources within the Study Area. Initial Strategy Packages were not carried forward if they did not meet the purpose and need, with the exception of the No-Build Strategy. In addition, a package was not carried forward if it contained the same basic concepts as another package carried forward, was combined with other packages that were carried forward, or had engineering or costs estimates that were magnitudes higher than other packages.

Key Elements of the No-Build Strategy

- I-70 Pavement Maintenance
- Bridge Rehabilitations as needed
- kclCON Project



- Amendment 3 and Economic Recovery Project including the I-435/I-70 Interchange.



What are the four First Tier Strategy Packages?

The screening process resulted in four strategy packages being carried forward for further analysis. The packages carried forward included:

- Strategy Package 1 No-Build: This is a requirement of the National Environmental Policy Act process.
- Strategy Package 2 Improve Key Bottlenecks: This package was moved forward and includes improvements to key bottlenecks with the addition of bus transit on the shoulder, collector distributor road systems at key locations, and potential community bridges.
- Strategy Package 5 Add General Lanes: This package was moved forward and includes four lanes on I-70 in each direction from the downtown loop to I-470 with the addition of bus transit on the shoulder, collector distributor road systems at key locations, and potential community bridges.
- Strategy Package 7 Improve Key Bottlenecks plus Transportation Improvement Corridor: This package was moved forward with the addition of bus transit on the shoulder, collector distributor road systems at key locations, and a wider transportation improvement corridor to accommodate four lanes and shoulders.

No-Build Strategy

The No-Build strategy includes maintenance activities as needed and projects already committed as part of the existing State Transportation Improvement Program (STIP). The No-

Build Strategy includes a needed level of effort required to address the major safety and maintenance problems. Corridor wide improvements include routine maintenance activities to pavement and bridges as needed. Existing bus transit service would be maintained. **Section 2.2** of the **Draft FTEIS** provides a detailed discussion of key improvements included in the No-Build Strategy.

The No-Build Strategy would cost an estimated \$8.1 million dollars a year in on-going maintenance and operational costs over the next 30 years. This represents a total cost of approximately \$250 million between 2009 and 2035.

Improve Key Bottlenecks Strategy

The Improve Key Bottlenecks Strategy includes the activities from the No-Build Strategy described above. The Improve Key Bottlenecks Strategy rebuilds and/or rehabilitates I-70 and the downtown loop to its existing configuration with a design life of 30 to 50 years. This includes pavement, roadbed, and structure improvements. This strategy will evaluate interchange improvements to address ramp lengths, merge areas, weave sections at all interchanges, and bicycle/pedestrian access. Other corridor wide improvements in the Improve Key Bottlenecks Strategy include integrating Operation Green Light on parallel routes, improving incident management response times to clear incidents and stalled vehicles, coordinating with the Smart Moves Regional Transit Vision, improving non-motorized access across I-70 and the downtown loop with Community Bridges, and investigating locations to add Park and Ride lots as necessary. **Figure 2.1** at the end of this chapter shows the Improve Key Bottlenecks Strategy. **Section 2.2** of the **Draft FTEIS** provides a detailed discussion of key improvements included in the Improve Key Bottlenecks Strategy.

The Improve Key Bottlenecks Strategy is estimated to cost \$630 million to construct and an additional \$160 million in right of way acquisition costs. The total estimated cost is \$790 million.

Key Elements of the Improve Key Bottlenecks Strategy

- Rebuild and/or rehabilitate I-70 and the downtown loop with a design life of 30 to 50 years
- Downtown loop lane balance improvements
- Improve interchanges by addressing ramp lengths, merge areas, weave sections, and bicycle/pedestrian access
- Consider interchange additions, consolidations, modifications, or eliminations to improve traffic flow and safety
- Improve the Jackson and Benton curves
- Rebuild the I-70/I-435 Interchange to provide six lanes on I-70 and six lanes on I-435 through the interchange
- Add CD roads on I-70 and I-470 through the I-70/I-470 Interchange
- Enhance I-70 express bus service, provide for bus transit on shoulder, and explore locations to add park and ride lots as necessary.

What is Operation Green Light?

It is a cooperative effort to improve the coordination of traffic signals and incident response on major routes.

Add General Lanes Strategy

What is the Smart Moves Regional Transit Vision?

It is the region's long range transit vision as developed and updated by MARC. The vision highlights corridors throughout the region and suggests service modes that could efficiently serve the populations along those corridors.

Key Elements of the Add General Lanes Strategy

- Builds upon the Improve Key Bottleneck Strategy
- Rehabilitate and/or rebuild I-70 with four lanes in each direction from the downtown loop to I-470
- Add directional ramps in the southeast and southwest corners of the downtown loop as shown below



- Rebuild the I-70/I-435 Interchange to provide eight lanes on I-70 and six lanes on I-435 through the interchange
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The Add General Lanes Strategy builds upon the elements from the Improve Key Bottlenecks Strategy. Other key elements of the Add General Lanes Strategy includes rehabilitating and/or rebuilding I-70 with four lanes in each direction from the downtown loop to I-470, adding directional ramps in the southeast and southwest corners of the downtown loop, rebuilding the I-70/I-435 Interchange to provide eight lanes on I-70, and six lanes on I-435.

Figure 2.2 at the end of this chapter shows the Add General Lanes Strategy. **Section 2.2** of the **Draft FTEIS** provides a detailed discussion of key improvements included in the Add General Lanes Strategy.

The Add General Lanes Strategy is estimated to cost \$735 million to construct and an additional \$185 million in right of way acquisition costs. The total estimated cost is \$920 million.

Transportation Improvement Corridor Strategy

The Transportation Improvement Corridor Strategy builds upon the elements of the Improve Key Bottlenecks Strategy plus it adds a transportation improvement corridor between the downtown loop and east of Lee's Summit Road. The transportation improvement corridor could be located between the eastbound and westbound lanes or on one side of the I-70 corridor. As currently proposed, the transportation improvement corridor would be barrier separated from the regular traffic lanes. The transportation improvement corridor could be used for congestion managed lanes, reversible lanes, HOV lanes, or bus lanes. **Section 2.2** of the **Draft FTEIS** provides a detailed discussion of key improvements included in the Transportation Improvement Corridor Strategy.

The Transportation Improvement Corridor Strategy is estimated to cost \$890 million to construct and an additional \$210 million in right of way acquisition costs. The total estimated cost is \$1,100 million.

2.3 First Tier Strategies Traffic Modeling

The Study Team used 2005 traffic counts as the base year and 2030 as the forecasted future year for assessing traffic levels on I-70. MoDOT provided historical Average Annual Daily Traffic (AADT) counts. The First Tier Strategies were modeled using a modified 2005 MARC regional travel demand model and the Highway Capacity Software (HCS). The modified MARC regional travel demand model was used to identify the daily volumes on I-70 while HCS was used to evaluate the peak hour congestion through the corridor for each strategy. Additional traffic details are available in Appendix D of the Draft FTEIS.

The First Tier Strategy improvements were added to the regional model one strategy at a time. The Study Team ran the regional model for each strategy which resulted in 2030 traffic volumes for each of the First Tier Strategies including the No-Build Strategy.

2.4 Evaluation Process for First Tier Strategies

This section discusses how MoDOT screened the four First Tier Strategies to decide on a Preferred Strategy. Each strategy was evaluated in terms of purpose and need, traffic, and engineering issues. The environmental analysis of the strategies is contained in **Chapter 3** of the **Draft FTEIS**.

2.5 The Preferred Strategy

The I-70 FTEIS Preferred Strategy is the Improve Key Bottlenecks Strategy in the downtown loop to east of I-435. From east of I-435 to I-470, the Preferred Strategy is to carry either the Improve Key Bottlenecks Strategy or the Add General Lanes Strategy into the Second Tier Studies. **Figure 2.3** at the end of this chapter shows the Preferred Strategy. The Transportation Improvement Corridor Strategy has been eliminated from consideration. **Section 2.3** of the **Draft FTEIS** provides a detailed discussion of key improvements included in the Preferred Strategy.

Key Elements of the Transportation Improvement Corridor Strategy

- Builds upon the Improve Key Bottleneck Strategy
 - Add dedicated lanes that could be used for trucks, HOV, or toll facilities located parallel to the general purpose lanes from the downtown loop to east of Lee's Summit Road
 - Rebuild the I-70/I-435 Interchange to provide a transportation improvement corridor on I-70 and six lanes on I-435 through the interchange
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The Preferred Strategy is estimated to cost between \$790 and \$830 million to construct depending on which scenario is selected east of I-435.

Why was the Preferred Strategy Proposed?

The Study Team identified the Improve Key Bottlenecks Strategy in the downtown loop to east of I-435 for the following reasons:

- It addresses the purpose and need for improving I-70 as identified in **Chapter 1**.
- It reduces peak hour congestion to LOS E or better.
- It has the lowest need to acquire properties and relocations of homes and businesses, especially in the environmental justice areas for the Build Strategies.
- It has the lowest human and natural environmental impacts for the Build Strategies.
- It has the lowest estimated cost of the Build Strategies.
- It improves access across the freeway.
- It improves transit service with bus on shoulder.
- It restores and/or rebuilds the existing infrastructure.

From east of I-435 to I-470, the Preferred Strategy is to leave the decision open for the Second Tier Studies to decide. The Preferred Strategy is to carry both the Improve Key Bottlenecks Strategy and the Add General Lanes Strategy with an option to stripe a HOV/Bus lane forward to the Second Tier Studies. The factors and issues leading to this conclusion include:

- Uncertainty in how much traffic levels are going to increase. Higher gas prices have caused reductions in national and regional vehicle miles traveled in recent years.
- Uncertainty of the effect of implementation of the Mid-America Regional Council's adopted 2040 Long Range Transportation Plan and its impact on growth patterns.
- Uncertainty of the Add General Lanes Strategy compatibility with future regional transit plan investments such as a fixed guide way system. Improving capacity in the I-70 corridor could potentially be solved by either adding new lanes to I-70

or through regional transit improvements. However, a significant investment to both potential highway and transit solutions is not necessary. If the region, supported by regional transit plans, concludes a significant transit investment would adequately address the traffic needs in the I-70 corridor, MoDOT, working with the region, would reevaluate the decision in the tiered environmental process.

- Potential federal climate change and vehicle emissions legislation. Congress is considering legislation that may focus transportation improvements on those that reduce driving instead of those that add capacity.
- Delaying the final improvement decision until the Second Tier studies would be a cost effective use of public dollars given the uncertainties noted above. This strategy avoids committing to a solution that may be undesirable given future policy changes and thus requiring reopening this First Tier study.

The I-70 FTEIS provides environmental evaluation for the wider of the two footprints (Add General Lanes Strategy) to ensure appropriate environmental impact analysis is conducted prior to the Second Tier studies.

What are the Next Steps in the Analysis?

Following the publication of this Condensed Final FTEIS document and the consideration of substantive comments, the Federal Highway Administration will then issue a Record of Decision that will formally select the strategy to move forward into the Second Tier Studies. The next step would be to conduct the Second Tier Studies which will further evaluate and refine the impacts of the Preferred Strategy. The Second Tier Studies will further define the right of way affected and required by the project and will avoid, minimize, or mitigate the identified effects of the I-70 improvements where possible.

How would the Preferred Strategy be divided into Second Tier Studies?

For the Second Tier Studies, the portion of I-70 covered by this FTEIS as well as the downtown loop will be divided into Sections of Independent Utility (SIUs). At this time, the

What is a Section of Independent Utility?

A Section of Independent Utility (SIU) is a section of a larger project that can function on its own, without further construction of an adjoining road section required.

proposed SIUs are the five Sub-Areas shown in **Figure 2.4** at the end of this chapter. The Study Team believes that these are logical SIUs that have rational endpoints (called logical termini). Each SIU is recommended for further study through varying types of environmental studies. **Table 2.1** lists each recommended SIU and the corresponding environmental study to be undertaken.

Table 2.1: Recommended SIUs

SIU	Environmental Study
Downtown Sub-Area	Environmental Impact Statement
Urban Sub-Area	Environmental Impact Statement
I-435 Interchange Sub-Area	Environmental Impact Statement
Suburban Sub-Area	Environmental Assessment
I-470 Sub-Area	Categorical Exclusion

A detailed discussion of each sub-area and the type of NEPA analysis accorded to each is located in the **Sections of Independent Utility Technical Memorandum** located in **Appendix C**.

2.6 Changes and Clarifications from the Draft I-70 FTEIS

The legend on **Figure 2-4** was revised from “Hydrology” to “Water Features”. The color scheme depicting the different SIUs was revised and a background texture was added to better distinguish between the different SIU segments.

In the Draft FTEIS, **Section 2.2 First Tier Strategies Development** under the strategy descriptions for the Improve Key Bottlenecks (page 2-16), Add General Lanes Strategy (page 2-18), the Transportation Improvement Corridor Strategy (page 2-22), and the Preferred Strategy description (page 2-36) each indicate the following for the Urban Sub-Area “The strategy will consider interchange consolidations, modifications with CD roads, and/or eliminations at 18th Street to improve traffic flow and safety.” The text was revised to remove “at the 18th Street intersection” due to the fact that other intersections may also be impacted, not just the 18th Street Interchange.

The crash data used to evaluate the effects of the First Tier Strategies has been updated. The revised crash data is contained in **Chapter 1 Purpose and Need**.

The updated crash data did not change the conclusion that the Preferred Strategy addresses safety issues in the corridor.

The description of the interchange improvements to address ramp lengths, merge areas, and weave sections issues was revised to include "bicycle/pedestrian access" for the first tier build strategies on pages 2-15, 2-17, 2-21, and 2-35 in the Draft FTEIS.





