Appendix T: Texas A&M Transportation Institute I-35 Capital Express Central Project: "Evaluation of TxDOT Build Alternatives and Community Concepts" – August 2021

TTI Evaluation of TxDOT Build Alternatives and Community Concepts – August 2021

Texas A&M Transportation Institute

Saving Lives, Time and Resources

tti.tamu.edu

I-35 Capital Express Central Project

Evaluation of TxDOT Build Alternatives and Community Concepts

Texas A&M Transportation Institute

August 2021

I-35 Capital Express Central Project

Evaluation of TxDOT Build Alternatives and Community Concepts

Authors:

Tina Geiselbrecht
Senior Research Scientist

Tim Lomax
Regents Fellow

Kevin Hall
Senior Research Scientist

Gretchen Stoeltje
Associate Research Scientist

Sujan Sikder
Research Data Scientist

John Murray
Assistant Research Scientist

Hao Pang
Assistant Research Scientist

Luke Albert
Associate Research Engineer

Kartikeya Jha
Associate Transportation Researcher

Texas A&M Transportation Institute
The Texas A&M University System
College Station, Texas 77843-3135

August 2021

TABLE OF CONTENTS

List of Figures vi
List of Tables vi
Project Introduction Task Objective 1
Methodology 3
Summary of Community Concepts 4
Reconnect Austin 4
Rethink35 5
Downtown Austin Alliance/Urban Land Institute Study 5
TxDOT Alternatives 7
Alternative 1 7
Alternative 2 7
Alternative 3 7
Summary of Alternatives 8
Ideas for Future Study 10
Comparing TxDOT Build Alternatives and Community Concepts 11
Measure of Feasibility 11
Method of Comparison 11
Findings 15
Comparing Reconnect Austin with TxDOT Alternatives 15
Feasibility 15
Traffic Volume Impacts 16
Comparing Rethink35 with TxDOT Alternatives 18
Feasibility 18
Traffic Volume Impacts 19
Comparing DAA/ULI with TxDOT Alternatives 21
TxDOT Role in development of cap projects – past, present and future 22
Conclusions 28
References 29

LIST OF FIGURES

Figure 1. Brief Timeline of I-35 Project Development. 2
Figure 2. I-35 CapEx-C Project Purpose and Need. 3
Figure 3. Anticipated Timeline. 4
Figure 4. Reconnect Austin Concept. 5
Figure 5. Rethink35 Community Concept. 5
Figure 6. DAA/ULI Artist's Rendering of I-35 Concept. 5
Figure 7. Example of a Cap. 6
Figure 8. Example of a Stitch. 6
Figure 9. TxDOT Build Alternative 1 Cross Section. 7
Figure 10. TxDOT Build Alternative 2 Cross Section. 7
Figure 11. TxDOT Build Alternative 3 Cross Section at Woodland Avenue. 8
Figure 12. Existing Bridge at 32nd Street. 8
Figure 13. Artist's Rendering of New Bridge at 32nd Street. 8
Figure 14. Example of an Intersection Bypass Lane. 9
Figure 15. Potential Cap and Stitch Locations from 38th Street to Manor Road. 9
Figure 16. Potential Cap and Stitch Locations near 15th Street. 9
Figure 17. Potential Cap and Stitch Locations from 8th Street to Cesar Chavez Street. 9
Figure 18. Example of a Cap over Depressed Mainlanes. 10
Figure 19. Example of a Cap Connecting to a Parking Lot with a Discontinuous Frontage Road. 10
Figure 20. Example of I-35 Frontage Roads on East Side of TxDOT Right of Way. 10
Figure 21. TxDOT Alternative and Reconnect Austin 2045 Evening Peak-Period Volume Change. 17
Figure 22. TxDOT Alternative and Reconnect Austin Concept 2045 Downtown Area Evening Peak-Period Volume Change. 18
Figure 23. TxDOT Alternative and ReThink35 2045 Evening Peak-Period Volume Change. 20
Figure 24. TxDOT Alternative and ReThink35 Concept 2045 Downtown Area Evening Peak-Period Volume Change. 21
Figure 25. Funding for Decks Projects in the Dallas Area. 25
Figure 26. TxDOT Local Enhancements Timeline. 27

LIST OF TABLES

Table 1. Elements of Concepts Incorporated or Possible in TxDOT Alternatives: Findings Related to June 2021 TxDOT Alternatives. 12
Table 2. Elements That Are Not Feasible or Not Likely in TxDOT Alternatives and Opportunities for TxDOT Discussion: Findings Related to June 2021 TxDOT Alternatives. 13
Table 3. ULI I-35 Cap Funding Estimates. 22
Table 4. TxDOT UTP Funding Categories. 23
Table 5. CapEx - C Funding Allocation from 2021 TxDOT UTP. 23

PROJECT INTRODUCTION TASK OBJECTIVE

The Texas Department of Transportation (TxDOT) Austin District has undertaken a major effort, the Mobility35 program, to improve mobility and connectivity for all modes of transportation along and across Interstate 35 (I-35) in Central Texas. The focus of this study is the section of the Mobility35 project known as the I-35 Capital Express Central (CapEx–C) project. The project limits extend from US 290 East to SH 71/US 290 West, roughly 8 miles. The CapEx–C project proposes lowering the mainlanes and adding two high-occupancy vehicle (HOV)/transit managed lanes in each direction for the length of the project, with additional direct-connect flyover ramps at I-35 and US 290 East. The proposed project also includes various safety and operational enhancements, including reconstructing ramps, bridges, and intersections; improving bicycle and pedestrian paths; enhancing frontage roads; and accommodating transit routes.

The entire I-35 Capital Express program has been in development since at least 2013 though the need for improvements to I-35 were recognized as early as the 1980s. The CapEx–C project, in particular, has been a topic of discussion between the Austin District, the City of Austin, state leaders, and various stakeholder interests and neighborhood groups. Over the last decade, some of the interest groups have formed nonprofit entities that have put forth concepts for how I-35 can be reconstructed to address community needs and objectives. Figure 1 illustrates a brief history of the project.

Figure 1. Brief Timeline of I-35 Project Development.

The Austin District requested that the Texas A&M Transportation Institute (TTI) conduct an independent evaluation of concepts proposed by Reconnect Austin, Rethink35, and the Downtown Austin Alliance (DAA)/Urban Land Institute (ULI) for the reconstruction and redevelopment of I-35. Specifically, TTI was tasked with analyzing each of the proposed community concepts and the TxDOT Austin District build alternatives that have been developed as part of the environmental review process. The purpose of the analysis was to provide an objective evaluation of the:

- Feasibility of community concepts as standalone alternatives.
- Elements of the community concepts that are currently incorporated or could be reasonably incorporated into the proposed TxDOT build alternatives.
- Elements of the community concepts that require further study and analysis.

TTI researchers considered several factors as part of the evaluation process including anticipated growth in population and traffic volume, the design and constructability of the TxDOT build alternatives and the community concepts, and the impacts of the community concepts and TxDOT alternatives on city streets and highways in the area. The evaluation also considered TxDOT's published purpose and need for the project, shown in Figure 2. This report fully describes each of the community concepts and the TxDOT build alternatives.

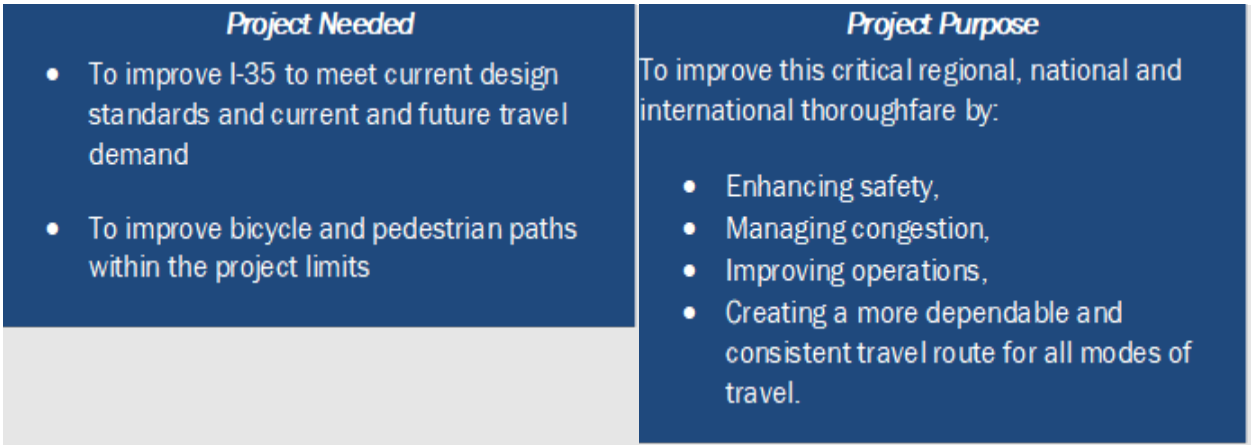


Figure 2. I-35 CapEx-C Project Purpose and Need.

METHODOLOGY

The project combined a number of research methods including literature and media reviews, stakeholder interviews, and comparisons between the community concepts and the TxDOT build alternatives. These comparisons were both qualitative applications of the same set of criteria to each community concept, as well as quantitative travel demand modeling assessments. Each method is described as follows.

TTI researchers met with representatives of the groups putting forth the three community concepts to delve into the ideas behind their concepts and their perceptions of the project development process. To gain a deeper sense of the community perspective, the research team also identified and requested interviews with several other stakeholders who did not sponsor a specific community concept but whose roles and interests could be affected by any new plan, including interests that use I-35 to move through the region. The research team then conducted interviews with these groups as well to be sure their voices and input were included. These stakeholders were the City of Austin, the Capital Metropolitan Transportation Authority (Capital Metro), the Austin Area Research Organization, Six Square, and Our Future 35 Scoping Working Group. The intent was to speak to a broad cross section of people across the region.

Figure 3 is the anticipated timeline as project development continues (*1*).

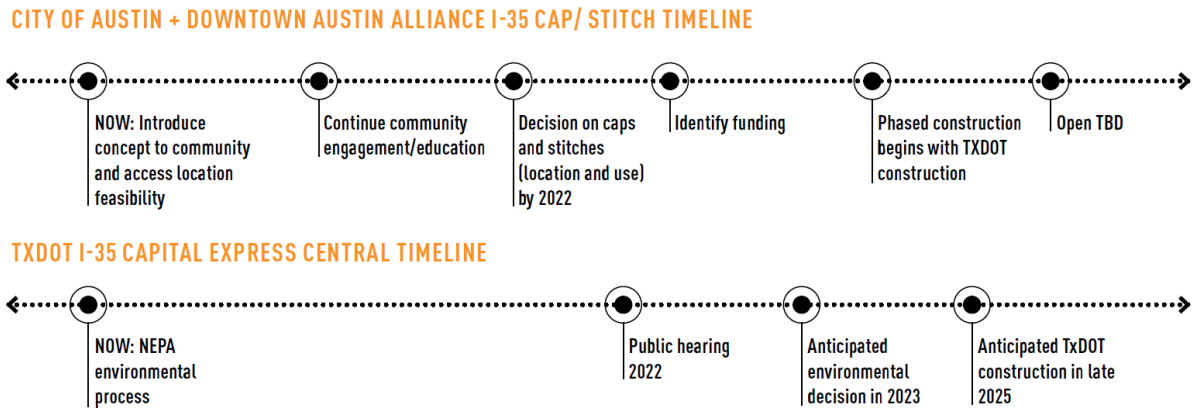


Figure 3. Anticipated Timeline.

SUMMARY OF COMMUNITY CONCEPTS

Reconnect Austin

The Reconnect Austin concept proposes to depress the highway and cover it with a six-lane boulevard throughout the entire section from MLK, Jr. Boulevard to Holly Street. This design would support a number of strategies designed to humanize the city around the corridor. On the surface level, the urban boulevard would replace the highway, functioning to reconnect downtown with east Austin, which could increase east-west connectivity. Moving the boulevard into the middle of the right of way (ROW) would provide reclaimed land on the edge of the existing TxDOT ROW. The proposal envisions that reclaimed land could allow construction of offices, shops, markets, and housing, which, as taxable land, would generate revenue. Creating more downtown housing could help eliminate the commutes of some of downtown Austin's workers if they could move close to their jobs, and within the authority of the City of Austin, some of that housing could be built as affordable housing. The design includes flood control, noise mitigation, and air-cleaning features. Removing high-speed

roads from the surface, the proposal aims to bring down the number of roadway injuries and fatalities, making walkable new districts safer for pedestrians and other vulnerable road users (*2*). Figure 4 illustrates the Reconnect Austin concept.

Source: Reconnect Austin

Figure 4. Reconnect Austin Concept.

Rethink35

The design Rethink35 proposes is a conversion of the central section of I-35 to an urban boulevard. Future hopes for the corridor include a rail line to points north or south of Austin. The proposal is very conceptual, with few details; the authors anticipate the concept will change as it undergoes evaluation and a public involvement process. There is no plan to sink high-speed roads underground, as in Reconnect Austin. Rather, the idea is that traffic will slow as it approaches the boulevard section and speed up again as it leaves to the north and south of downtown. Cross streets connecting east Austin to the downtown area will provide east-west connectivity options and reintegrate east Austin into the fabric of the city (*3*). Figure 5 is an artist's rendering of the Rethink35 concept.

Source: Rethink35

Figure 5. Rethink35 Community Concept.

Downtown Austin Alliance/Urban Land Institute Study

The DAA/ULI vision for revamping I-35 is best described as a set of planning and design recommendations tied to a set of desired outcomes. The report does not include a detailed plan or technical designs but does propose a number of foundational design elements that are captured in Figure 6. These elements include a narrower ROW than what TxDOT proposes (246 feet rather than 360); depressed mainlanes; three caps and eight stitches or pedestrian bridges along the entire project length; and frontage roads overhanging the mainlanes that are designed as low-speed urban boulevards with both travel and parking lanes, and traffic-calming devices like speed cushions. Figure 6 also shows the relationship between the depressed mainlanes and the overhanging frontage roads.

Source: Downtown Austin Alliance

Figure 6. DAA/ULI Artist's Rendering of I-35 Concept.

The DAA/ULI concept employs design concepts known as caps and stitches that are possible because of the lowered mainlanes. In the case of I-35, a ***cap*** would be a large deck that runs north to south over I-35 but is not continuous, as proposed in the Reconnect Austin concept;

instead, caps are considered at multiple locations. The caps are connected by stitches. ***Stitches*** are widened bridges that would run east-west over the highway. Stitches over I-35 would include travel lanes and protected paths, at a minimum. Stitches may also include landscaping and additional buffers to enhance place making. The playing fields in Figure 7 are an example of a cap, while Figure 8 illustrates a stitch—a wider cross-street overpass (*1*).

Source: Downtown Austin Alliance

Figure 7. Example of a Cap.

Source: Downtown Austin Alliance

Figure 8. Example of a Stitch.

The frontage roads could be connected with caps in some locations. In sections where entrance or exit ramps are required between the freeway and the frontage roads, the cap would not be built, and the frontage roads would be farther apart. The DAA/ULI report includes a set of principles supporting its overarching theme, which is to build and implement a robust planning and design process informed by specific policies of mobility, health, equity, and aesthetic integration. That process should enable a co-creation of a vision between government and representative community members. The report's recommendations can be summarized in seven calls for action:

- Creation of a design foundation based on undergrounding the highway, topping it with a cap and stitch design, decreasing downtown entrances and exits, reconnecting east-west surface streets between downtown and east Austin, and reclaiming or creating new land in the current ROW on which to develop new commercial and residential properties and public spaces.
- Timely action to take advantage of available funding and to coordinate with the National Environmental Policy Act review process.
- Transformation of the highway into a multimodal mobility network that is both functionally and beautifully integrated into the city.
- Increased connectivity between downtown and east Austin.
- Conversion of the current highway ROW into commercial and residential development, including affordable housing.
- Co-creation of the vision for the new roadway with the Austin community and permanent governance and guidance from the Our Future 35 Scoping Working Group.
- Acknowledgment by leadership at the City of Austin and at TxDOT of past injustices imposed on communities from the segregationist land use policies of the early 20th century and the initial construction of the highway (*4*).

TXDOT ALTERNATIVES

TxDOT proposals for I-35 improvements have evolved through discussions with the community. In 2002, a proposal to reconstruct I-35 included two elevated managed lanes through downtown. All TxDOT alternatives now include main freeway lanes below ground level through downtown and more cross-street bridges to connect communities on the east and west sides of the corridor. The alternatives also support a change in the way people travel by building bicycle and pedestrian paths and HOV lanes on the corridor.

TxDOT has put forward three preliminary build alternatives based on known corridor constraints. The three alternatives are described, and details are available at www.my35capex.com. The cross sections also vary in each alternative throughout the corridor. The figures that follow are representative examples.

Alternative 1

Alternative 1 includes tunneled managed/transit lanes and lowered mainlanes, with additional flyovers at I-35 and US 290 East. The mainlanes are generally located one level below the ground-level frontage roads, and the tunnel is located two levels below the frontage roads. Figure 9 shows the illustrated cross section from 4th Street to Cesar Chavez Street.

Source: TxDOT

Figure 9. TxDOT Build Alternative 1 Cross Section.

Alternative 2

Alternative 2 includes lowered managed/transit lanes and lowered mainlanes, with additional flyovers at I-35 and US 290 East. Both managed/transit lanes and mainlanes are lowered one level below frontage roads and cross streets. Managed/transit lanes and mainlanes are on the same level, as illustrated in Figure 10.

Source: TxDOT

Figure 10. TxDOT Build Alternative 2 Cross Section.

Alternative 3

Alternative 3 is similar to Alternative 2, with modifications at Airport Boulevard and Woodland Avenue. The two managed/transit lanes in each direction connect to the frontage roads using an elevated roadway at Airport Boulevard and Woodland Avenue. Figure 11 is the illustrated cross section of the TxDOT build alternative at Woodland Avenue.

Source: TxDOT

Figure 11. TxDOT Build Alternative 3 Cross Section at Woodland Avenue.

Figure 12 show the bridge at 32nd Street as it is now and Figure 13 is an artist's rendering of the bridge may look in the future as imagined in the TxDOT alternatives.

Figure 12. Existing Bridge at 32nd Street.

Figure 13. Artist's Rendering of New Bridge at 32nd Street.

Summary of Alternatives

All TxDOT alternatives propose lowering the mainlanes, removing visual barriers and providing opportunities to reconnect the east-west communities. The alternatives will lower I-35 and remove 5 miles of upper decks/elevated lanes that create a visual barrier.

The alternatives propose rebuilding cross street bridges for wider, safer bicycle and pedestrian crossing and providing bicycle/pedestrian paths along I-35 frontage roads. East-west crossings will feature a 10-foot shared-use path with a 20-foot buffer between vehicles and the path along both directions of travel. This will facilitate non-motorized modes of travel, improve east-west connectivity and enhance quality of life along the corridor. In addition to enhancing existing east-west cross streets, a new east-west connection at 5th Street is being proposed in TxDOT alternatives. Additional bicycle and pedestrian bridges between US 290 East and 51st Street and at the Capital Metro Red Line crossings at both Airport and 4th Street are being proposed in the TxDOT alternatives.

The TxDOT alternatives also include adding HOV /transit managed lanes along both directions of travel. These lanes will be reserved for use by express bus transit service, carpools, and vanpools and will support changes in the way people travel by encouraging them to shift from driving alone. These improvements will help increase people throughput while decreasing vehicle throughput. Use of these lanes for future automated vehicles could be considered when vehicle and infrastructure technologies evolve and become matured for implementation.

Strategically placed intersection bypass lanes (a road that allows vehicles to skip intersections without re-joining the freeway, as indicated by the arrow in Figure 14). Design speeds on frontage roads that are lower than typical urban design are proposed in all TxDOT alternatives and will improve safety and operations. Bypass lanes will relieve frontage road intersection congestion, while extra lanes between entry and exit ramps will reduce the conflicts in these weaving areas. The existing I-35 roadway, built in the 1960s and 1970s, will be flattened and straightened to meet current design standards and safety requirements. These safety measures will improve visibility, relieve conflict points, reduce crashes, and improve mobility.

Source: TxDOT

Figure 14. Example of an Intersection Bypass Lane.

TxDOT is developing the alternatives in close coordination with the City of Austin and Capital Metro to accommodate locally funded enhancements, such as caps, stitches, and direct transit access to the HOV/transit managed lanes. The current locations of caps and stitches and associated acreage are as follows:

- Stitching at E. 38th ½ Street—1.2 acres.
- Between E. 32nd Street & Dean Keeton Street—1.3 acres.
- Between Dean Keeton Street & Manor Street—3.5 acres.
- Stitch at E. 15th Street—0.6 acres.
- Between 12th Street and 11th Street—2.5 acres.
- Between 8th Street and 7th Street—1.4 acres.
- Between 7th Street and 6th Street—1.4 acres.
- Between 6th Street and 5th Street—1.5 acres.
- Between 5th Street and 4th Street—1.6 acres.
- Between 4th Street and Cezar Chavez Street—5.6 acres.

Figure 15 shows the schematic of potential for cap (shown in green and stitch locations (shown in blue) in the area from 38th Street to Manor Road. Figure 16 shows the locations in the area from 15th Street to 12th Street and Figure 17 illustrates the area from 8th Street to Cesar Chavez Street. These schematics are still in development and are subject to change.

Source: TxDOT

Figure 15. Potential Cap and Stitch Locations from 38th Street to Manor Road.

Source: TxDOT

Figure 16. Potential Cap and Stitch Locations near 15th Street.

Source: TxDOT

Figure 17. Potential Cap and Stitch Locations from 8th Street to Cesar Chavez Street.

With these improvements, TxDOT alternatives can connect communities, relieve local streets and support changes in the ways people travel by adding transit-accessible HOV managed lanes and bicycle and pedestrian paths. The 20.6 acres of caps and stitches, however, could

not be funded by TxDOT. Those elements would need to be funded by federal, local or private dollars.

IDEAS FOR FUTURE STUDY

In addition to the caps-and-stitches model discussed thus far, there are other ways that caps can be configured to support multiple uses. Figure 18 and Figure 19 illustrate various types of development on caps and designs with frontage roads in different locations. Figure 18 shows a park connected to a community center and Figure 19 shows a parking lot adjacent to a park built on the cap (5). These figures are taken from the DAA Opportunities and Constraints Report showing a variety of uses on the capped area, as well as frontage roads that operate more like regular city streets. The frontage road on the right side of the diagram in Figure 18 is not continuous; this would not only reduce frontage road volumes, but it would also provide more options for connecting the cap to adjacent land uses.

These concepts require more study but the frontage roads could be shifted in the downtown area of I-35 where existing streets can provide access, so no properties are left without connections. These ideas minimizes displacements and improve access for all modes. This could potentially allow designing downtown I-35 with frontage roads pushed together and shifted to one side similar to the TxDOT alternatives 2 and 3 between Dean Keeton Street and Manor Road shown in Figure 20. This frontage road reconfiguration more closely resembles a regular city street. The shifting of the frontage road would allow pedestrian access directly onto a cap without crossing the frontage road.

From a signal timing perspective, locating both frontage roads on the same side of the mainlanes provides signal efficiency over the phasing of a typical freeway interchange with frontage road and U-turn phases. These ideas for different configurations for frontage roads may improve pedestrian access as well and may reduce the need for intersection bypass lanes. These are opportunities for further investigation in portions of the TxDOT build alternatives.

Figure 18. Example of a Cap over Depressed Mainlanes.

Source: Downtown Austin Alliance

Figure 19. Example of a Cap Connecting to a Parking Lot with a Discontinuous Frontage Road.

Source: TxDOT

Figure 20. Example of I-35 Frontage Roads on East Side of TxDOT Right of Way.

COMPARING TXDOT BUILD ALTERNATIVES AND COMMUNITY CONCEPTS

Measure of Feasibility

The feasibility rating evaluated the community concepts, as well as significant, separate elements of each concept. The term *feasible* can have many meanings. In this analysis a simple "can this be built?" question did not seem appropriate; with enough funding and enough structure, anything can be built. This analysis used a more functional and contextualized definition of feasibility that includes consideration of the cost, function, goal achievement, and alignment of items within TxDOT's jurisdiction.

Method of Comparison

In order to evaluate the feasibility of the three community alternatives, researchers compared them to TxDOT's build alternatives in both qualitative and quantitative ways, narrowing the definition of *feasible* to an idea's compatibility with TxDOT's existing alternatives. First, a set of criteria was developed that was then applied to the three community concepts as well as to the goals, plans and design choices of the other stakeholders that were engaged for this study. The concepts and plans were put into a matrix and coded with one of the following seven criteria:

- Already incorporated into one or more TxDOT alternatives: The idea is present in one or more alternative schematics in June 2021.
- Partially incorporated into one or more TxDOT alternatives: A significant portion of the idea is present in one or more alternative schematics in June 2021.
- Could be incorporated into one or more TxDOT alternatives: The basics of the idea are consistent with one or more alternative schematics in June 2021.
- Likely not feasible for any TxDOT alternatives: The idea is not likely to be implemented in any of the alternative schematics in June 2021.
- Definitely not viable with TxDOT alternatives: The idea is not able to be included in a TxDOT design alternative for one of many reasons (for example, policy restrictions, does not meet the purpose and need, or outside TxDOT's jurisdiction and/or funding limitations).
- Opportunity for TxDOT to participate in a discussion: TxDOT does not have a direct role in the issue but could participate in partnership with stakeholders.

A summary of the analysis is shown in the following tables. Table 1 notes everything that is already or could possibly be incorporated into TxDOT alternatives. Table 2 lists the elements or issues that are not feasible or not likely and also elements in which TxDOT could participate in discussions.

Table 1. Elements of Concepts Incorporated or Possible in TxDOT Alternatives: Findings Related to June 2021 TxDOT Alternatives.

Status	Element or Issue	Notes/Additional Analysis Needed
Already incorporated into one or more TxDOT alternatives	Freeway mainlanes below ground between Holly Street and Airport Boulevard	Alternatives have lowered general purpose lanes removing high-speed roads from the surface and improved street network connectivity (east-west and north-south).
	Add street network connections (east-west and north-south).	5th Street connection being added on TxDOT alternatives
	Enhance multimodal mobility on the east-west connections.	TxDOT plans for east-west connectivity improvement, additional bike and pedestrian crossings, and transit provision on managed lanes and cross streets.
	Reduce vehicular-related deaths and maximize safety	TxDOT's Road to Zero initiative
	Mitigate traffic spillover into neighboring streets and communities.	Community concepts reduce capacity on I-35 and increases traffic in neighborhoods.
Partially incorporated into one or more TxDOT alternatives	Match City of Austin guidelines for Vision Zero.	TxDOT's Road to Zero initiative supports City of Austin's Vision Zero initiative engineering actions.
	Boulevard can facilitate positive climate change impacts.	Facilities that support bus service, walking and biking are part of the TxDOT alternatives.
	Cantilever frontage roads to reduce footprint and ROW.	Cantilevered frontage roads limit entry/exit ramps. Cannot be the only design used.
	Use cap and stitch at various locations along and across I-35.	TxDOT alternatives allow for caps to be built; wider cross street bridges are being incorporated. Caps would be funded by others. Concept being studied with the City of Austin and DAA.
Could be incorporated into one or more TxDOT alternatives	Provide direct transit access from the managed lanes into downtown and the University of Texas campus.	All build alternatives include studying the feasibility of direct transit access at Riverside Drive and Dean Keeton Street in coordination with Capital Metro.

Table 2. Elements That Are Not Feasible or Not Likely in TxDOT Alternatives and Opportunities for TxDOT Discussion: Findings Related to June 2021 TxDOT Alternatives.

Status	Element or Issue	Notes/Additional Analysis Needed
Entire element is not compatible with TxDOT alternatives	Freeway mainlanes moved below ground. Build six lane urban boulevard on surface.	Requires full and continuous cap.
	Replace freeway with six lane boulevard.	A key element of the purpose and need is improving mobility. Model results show large increase in trips on city streets already over capacity.
	Use the rest of the ROW for affordable housing.	Housing is not feasible within TxDOT ROW
	Boulevard creates developable land within existing ROW.	Some of the developable land would be located between existing developments with direct access to frontage roads and the new boulevard. It is unclear how existing developments would be accommodated or impacts to them mitigated.
	Add rail transit to median.	Capital Metro's Project Connect does not include rail transit on I-35. The managed/transit lanes provide a reliable route for transit.
	Redesignate SH 130 to I-35; require trucks to use redesignated I-35.	80% to 85% of truck traffic is destined for areas near I-35. If truck trips are pushed off I-35, they will use east-west city streets, some through neighborhoods, to get to their eventual destination.
	Increase dense, walkable, mixed-use, and equitable transit-oriented developments along I-35.	TxDOT alternatives include additional east-west connections and additional bike and pedestrian crossings, and provide a reliable route for transit on managed/transit lanes.

Status	Element or Issue	Notes/Additional Analysis Needed
Likely not feasible for any TxDOT alternatives	Divert trucks to SH 130 or other corridors.	Many trucks are destined for downtown/University of Texas/ Capitol and east Austin.
Opportunity for TxDOT to participate in a discussion	Create affordable housing.	This is not within TxDOT's jurisdiction, but it could coordinate if/when initiatives are made by other agencies that are responsible for affordable housing.
	Direct new revenues to anti-displacement program.	This is not within TxDOT's jurisdiction, but it could coordinate if/when initiatives are made by other agencies that are responsible for revenue generation.
	Help build local wealth, enhance and protect historic and cultural resources, and prevent displacements by using revenues from I-35.	This is not within TxDOT's jurisdiction, but as part of project planning and design, TxDOT is working in close collaboration with the City of Austin and other agencies.
	Maximize socially, economically, and environmentally beneficial land use; reform land use policies.	TxDOT does not have the ability to reform land use policies— the City of Austin would have to lead.

Next, researchers visualized each concept and each TxDOT build alternative as cross section diagrams. This enabled each concept to be applied to different sections of the study area and identified functional design issues like on/off ramp placement.

In looking at the possible impacts and effects of each concept or alternative, researchers also examined daily traffic volume history, development potential for reclaimed land parcels, the trend of converting highways to boulevards, and issues of latent and induced demand. Finally, researchers ran travel demand models for each concept and build alternative using the Capitol Area Metropolitan Planning Organization's travel demand model to forecast the effects of various scenarios on trip generation, trip distribution, mode choice, and traffic assignment.

FINDINGS

Comparing Reconnect Austin with TxDOT Alternatives

Feasibility

Many elements of the Reconnect Austin concept are feasible. With a mainlane freeway option collector-distributor roads or intersection bypass lanes, and connecting ramps providing access to downtown, the Capitol area and the University of Texas area, the boulevard functions similarly to the frontage roads in the TxDOT build alternatives and with better signal efficiency. From a travel demand modeling perspective, the Reconnect Austin concept provides similar capacity elements, but causes volume increases greater than 25 percent on portions of the east Austin street network than the TxDOT build alternatives.

Two key components impede the feasibility of Reconnect Austin: the significant added cost and the uncertainty of third party funding to provide that funding. The Reconnect Austin concept is premised on the idea that the roadway ROW is narrower than the existing facility and the land between the boulevard and the existing ROW line would be sold by TxDOT. A full cap over the tunneled mainlanes allows the frontage roads to shift in and create a boulevard. The reclaimed land could be sold to private developers to create a tax base, or the City of Austin may purchase it for any number of purposes. Because profitable and human-centered development is a substantial part of Reconnect Austin's vision, it bears discussion here since it is dependent on the highway design that supports it, even though it is outside the authority of TxDOT to fund, build, or operate any development.

There have been many new developments adjacent to the frontage road since the original Reconnect proposal was conceived, and these appear to have removed a significant amount of the possible development space. Predicated on high-end features like Capitol or external window views and roadway frontage for new commercial spaces, these new developments are unlikely to be vacated, demolished, and developed in the timeframe when TxDOT could realize a return on selling or leasing any reclaimed land resulting from depressing and narrowing the roadway. In addition, any large building redevelopment over the freeway mainlanes and collector-distributor roads would require structural supports to be installed during the initial construction for buildings not yet planned, designed, or funded. These supports would lower the underground roadway due to vertical clearance requirements and ramp grades would likely be steeper. The coordination in timing and responsibility seems not only daunting, but outside TxDOT's mission and authority.

Using a decision process that defines "not available for new development" as properties that have significantly large buildings, historic or culturally significant buildings, building sites that are under construction, or properties affected by entry or exit ramps, the research team identified 27 parcels with frontage road access totaling 22 acres with a value of approximately $200 million. Before the boulevard construction process could begin, these

properties would either have to be acquired or their driveways extended to the boulevard. Certainly, there are a variety of analytical techniques used, but at the very least, the amount of funding from the development sources needs further study.

In addition to the costs associated with acquiring properties and access, the costs for the cap itself may be prohibitively expensive. A cap from Cesar Chavez to MLK, Jr. Boulevard, for example, would require approximately 30 acres of coverage. Using the example costs from Klyde Warren Park of $350 to $400 per square foot, this equates to between $460 million and $530 million that would have to be provided by a third party. The cost of additional right of way that would need to be purchased from TxDOT includes the 80 feet on each side of the boulevard for the length of continuous cap. This equates to more than one million square feet of right of way that must be acquired at an estimated cost of $ 99 million ($95/sq. ft.). It is also necessary to consider the maintenance costs of the cap proposed in the Reconnect Austin concept. Using the example maintenance costs from Klyde Warren park, this equates to $7.8 million per year (*6*).

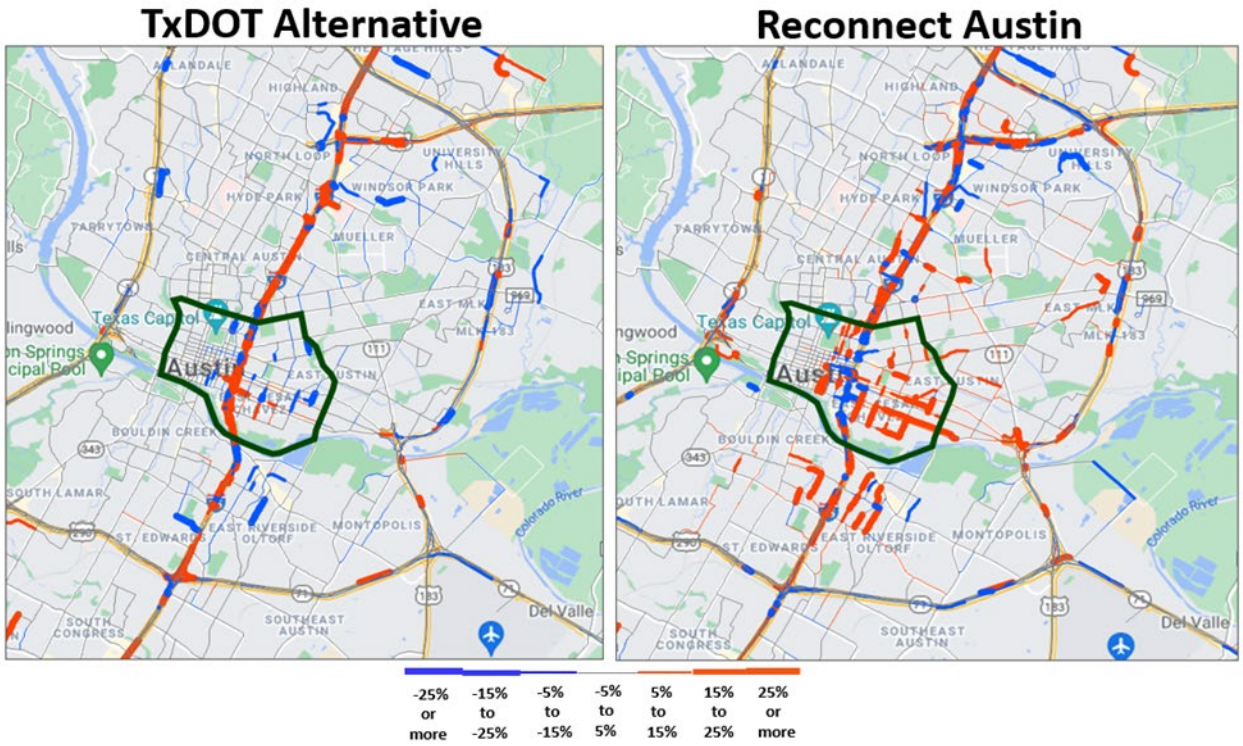
Nevertheless, although most of Reconnect Austin's concept goals of a boulevard with redeveloped land is outside TxDOT's scope and purpose and need for this project, some of these goals can be accommodated within the TxDOT build alternatives through ongoing partnership with the appropriate agencies.

Traffic Volume Impacts

To understand the changes in traffic patterns and volumes that could result from the different future scenarios, maps showing traffic volume changes were developed and are presented in this section. Future traffic volumes for the five proposed alternatives were compared to the No Build scenario volumes and roadways with relative increase or decrease in traffic volumes shown in red and blue colors respectively. Since the evening peak period typically has higher traffic volumes, this analysis was completed using the 2045 evening peak-period (3:30 p.m. to 6:30 p.m.) traffic forecasts. Each of the TxDOT build alternatives performs with similar travel model results. As such, only one TxDOT build alternative was compared to the community concepts and is noted as the TxDOT Build Alternative in the subsequent figures in this section. Figure 21 and Figure 22 illustrate the change in traffic volume expected for the TxDOT Build Alternative and Reconnect Austin relative to the No Build alternative. As shown in the TxDOT Build Alternative, the I-35 corridor becomes a more attractive option and shows increases in traffic volumes on the I-35 corridor. The surrounding streets, however, show volume declines as shown by the blue lines. The existing conditions during and between traditional rush hours causes drivers to divert to city streets rather than I-35. Latent demand encourages more cars onto local and neighborhood streets. The traffic analysis shows that with improved traffic operations and increased capacity on I-35, drivers will be more inclined to use the highway, thus alleviating congestion on local

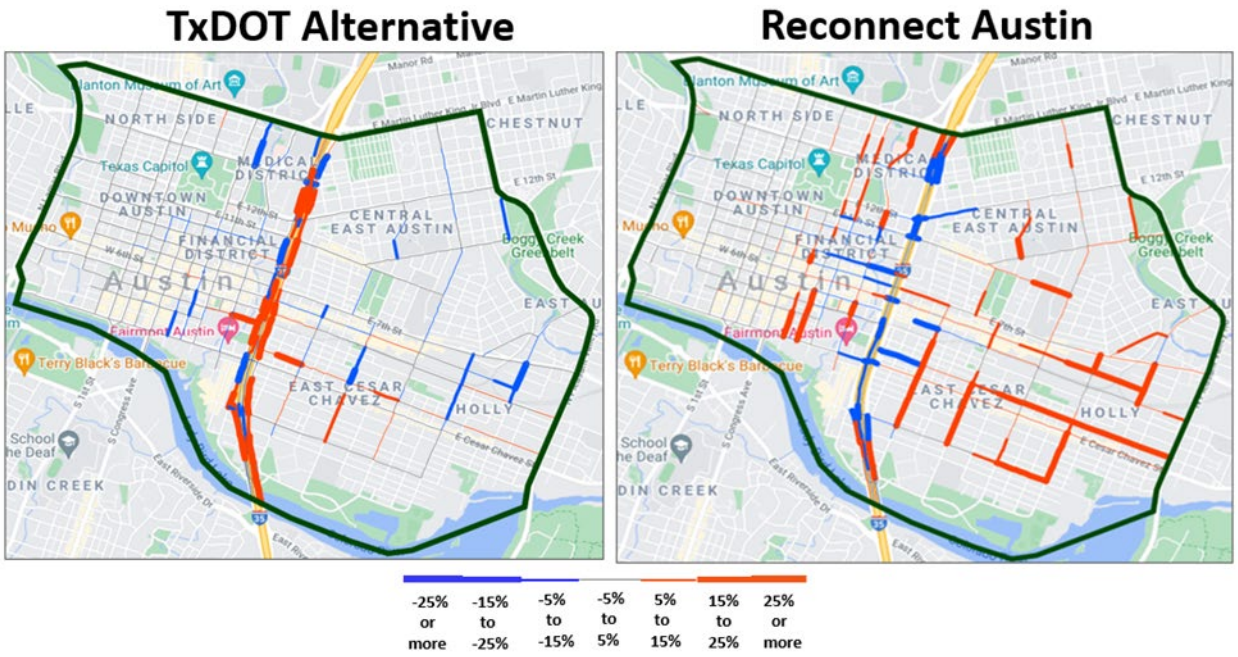
streets and other parallel regional facilities. These observations suggest the added capacity on I-35 is used by traffic that would otherwise use city streets.

The figures also show the volume changes from the No Build alternative to the Reconnect Austin design concept. Between Lady Bird Lake and MLK, Jr. Boulevard, there are many sections along I-35 with volume declines from the No Build case to Reconnect Austin, while north of MLK, Jr. Boulevard, the volume increases on I-35 show a similar pattern to the TxDOT Build Alternative. The major streets around I-35, particularly those on the east side show significant volume increases. These increases also appear in the area south of Lady Bird Lake. The general trend of increasing volume on city streets around I-35 between MLK, Jr. Boulevard and Lady Bird Lake is likely due to reduced access to the general purpose lanes compared to the No Build alternative. Additionally, the overlaying boulevard does not appear to provide a better alternative to users over other north-south city streets.



Volume change compared to No Build
Red - volume increases; Blue - volume decreases; Links with small volume (less than 100 trips) are shaded gray.

Figure 21. TxDOT Alternative and Reconnect Austin 2045 Evening Peak-Period Volume Change.



Volume change compared to No Build
Red - volume increases; Blue - volume decreases; Links with small volume (less than 100 trips) are shaded gray.

Figure 22. TxDOT Alternative and Reconnect Austin Concept 2045 Downtown Area Evening Peak-Period Volume Change.

Comparing Rethink35 with TxDOT Alternatives

Feasibility

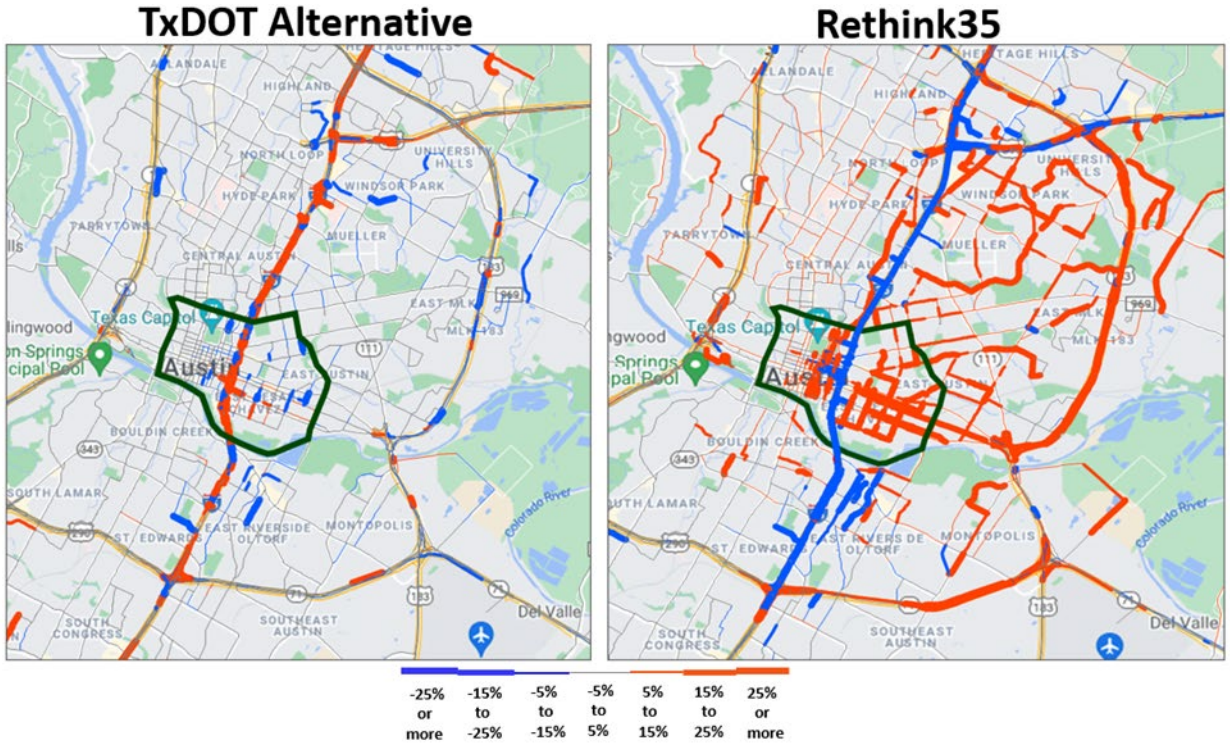
Rethink35 seeks to dramatically reshape not only the I-35 corridor, but travel patterns and modes across the region. Eliminating the high-capacity corridor through the spine of central Austin and replacing it with a six-lane boulevard would provide new development space and reduce north-south traffic volume and noise levels in the existing I-35 corridor. The purchase of access rights and available land for development would be similar to those from Reconnect Austin and the costs for TxDOT ROW is approximately $ 111 million dollars. Although the physical rebuilding of I-35 into a boulevard with wide sidewalks, accommodations for transit, bicycles, and pedestrians can be done, the traffic impacts to the surrounding streets and delays it would cause to through traffic make it unlikely that such a concept would meet the transportation needs of an interstate highway. The travel demand model results show that the Rethink35 concept would likely reduce traffic on I-35 and improve operations directly around the envisioned project, but congestion problems would be pushed to city streets. Further, this conceptual design would not adequately accommodate the needs of commuters from the suburbs to the major regional employment centers. It is also difficult to examine the effect of such a large change in the transportation network because the ripple effects would extend far beyond vehicle and person travel.

In the near- and medium-term, the central Austin trip destinations—the University of Texas, the Capitol complex, other government agencies, offices, shops, hotels, restaurants, and entertainment venues—would continue to pull vehicles, freight, and people to the area. With no I-35 freeway capacity, the models indicate that portions of these trips would shift to MoPac, SH 71, US 290, and US 183. The remainder of those trips would shift to the street network through the neighborhoods east and west of I-35 to get to downtown Austin.

In the longer-term it is likely that the changing trip destinations and the transportation network would create a different balance point. The 2013 Mobility Investment Priorities report examines the traffic conditions that would exist on I-35 in 2035 if there were no improvements beyond those that were funded at the time. With no additional changes to either the transportation system or to trip patterns, an evening commute trip on I-35 from downtown to Round Rock that took 45 minutes in 2011 was estimated to take 2-1/2 hours in 2035 (*7*). It does not seem realistic that people would be willing to do this. A much more likely scenario is that the jobs and population will grow differently across the region in response to long travel times between the Austin suburbs and downtown Austin. Some people will move closer to their existing job, others will move their job closer to their home. And because of our COVID-19 pandemic experience, we also know that some workers with flexibility will choose to not commute every day.

Traffic Volume Impacts

Volume changes for the Rethink35 concept are shown in Figure 23 and Figure 24. Rethink35 shows a diversion of trips away from the I-35 corridor and much lower volumes on I-35. This is expected because the goal of Rethink35 is to replace the I-35 freeway with a boulevard, which will naturally lower the corridor's capacity. SH 71 and US 183 appear to be the bypass route for the traffic that is on I-35 in the No Build scenario, with increases above 25 percent for most links. Most major streets on the east side of I-35 show volume increases of more than 15 percent relative to the No Build scenario. Many streets on the west side close to I-35 show the same pattern. These observations align with the shift of traffic from I-35 to US 183; the major city roads now provide access to US 183 for trips originating or ending in downtown and east Austin. MoPac has only a few links with volume increases, which suggests US 183 inherited the role of I-35 rather than it being shared between the two remaining north-south corridors.



Volume change compared to No Build
Red - volume increases; Blue - volume decreases; Links with small volume (less than 100 trips) are shaded gray.

Figure 23. TxDOT Alternative and ReThink35 2045 Evening Peak-Period Volume Change.

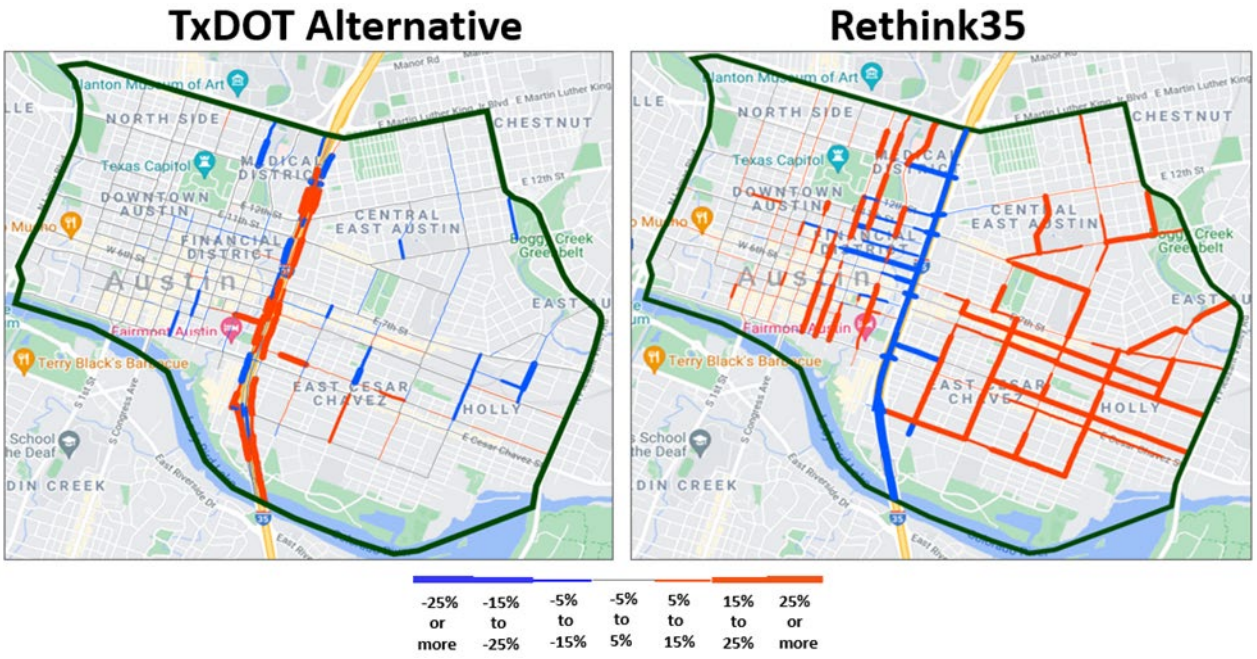


Figure 24. TxDOT Alternative and ReThink35 Concept 2045 Downtown Area Evening Peak-Period Volume Change.

Comparing DAA/ULI with TxDOT Alternatives

The DAA/ULI concept is not as dramatically different from the TxDOT build alternatives as are Rethink35 and Reconnect Austin. It envisions a narrower I-35 corridor than the TxDOT build alternatives, one with frontage roads that overhang the freeway mainlanes. This could allow space for non-TxDOT agencies to fund and build caps over the space between the mainlanes. The caps could include parks or low-intensity (one-or-two story) buildings. The tucked- in frontage roads would have 30-mph speed limits to reduce negative traffic effects of vehicles and could provide space for wide sidewalks, shade trees and other pedestrian-scale amenities. With this collaboration from other funding partners, the DAA/ULI concept could be achieved.

The mobility impacts of the overhanging frontage roads and the additional unfunded costs are the principal impediments to feasibility. The difficulty with overhanging the frontage roads over the mainlanes is that it does not allow for entry and exit ramps to move traffic between downtown and the freeway mainlanes, (Figure 6). About two city blocks of space are required to create a ramp from the lowered freeway to the surface frontage road, and the cap development could not exist on top of these ramps. Even more distance might be needed to move the frontage roads from their overhanging location to one that allows the ramps to change levels. The DAA/ULI concept is feasible for short distances where entry and

exit ramps are not needed, but a continuous cap would not be possible if the design intention is to move traffic from surface streets to the freeway mainlanes.

The DAA/ULI report proposes 11 acres of caps and 2 acres of stitches. Applying the same cost range of $350 to $400 per square foot, the costs for this is between $198 million and $225 million. The cost for operations and maintenance would be about $ 2 million per year, using the costs of maintenance at Klyde Warren Park as a guide. The DAA/ULI report suggests that $171 million of this funding can be realized through a tax increment finance district with additional funding from federal sources (*4*). There is still a significant funding gap, as shown in Table 3, along with possible funding sources.

Table 3. ULI I-35 Cap Funding Estimates.

Type of Funding	Amount
Tax increment finance district	$171 million
Federal—RAISE grant	$0–$25 million
State/MPO	?
City/county	?
Capital Metro	?
Philanthropy	?
Toll revenue	?
Total funding sources	$171–$ 196 million
Funding gap	$121–$ 146 million

TXDOT ROLE IN DEVELOPMENT OF CAP PROJECTS – PAST, PRESENT AND FUTURE

The preceding sections of this report discuss the design and traffic implications of the community concepts and how they compare to the TxDOT build alternatives. Also policy and statutory limitations determine TxDOT's role in developing and funding elements of the community concepts. TxDOT has statutory authority and agency responsibility to develop and deliver transportation projects. The agency endeavors to design and deliver projects that meet the needs of all transportation system users while also being responsive to the community. However, statutes and/or policies may prohibit TxDOT from certain actions. For example, TxDOT has no jurisdiction over land use and therefore could not develop affordable housing. However, TxDOT works cooperatively with partner agencies such as the City of Austin to achieve community goals. For example, the two entities have supporting safety goals with TxDOT's Road to Zero initiative and the city's Vision Zero initiative. While the policies may not be identical, they support each another.

TxDOT's funding processes are defined in the Unified Transportation Program (UTP). The UTP is a 10-year plan that guides the development of projects. The UTP is further organized into 12 funding categories, as shown in Table 4 with each category addressing a specific type of work (*8*).

Table 4. TxDOT UTP Funding Categories.

Category	Type of Funding
1	Preventative Maintenance and Rehabilitation
2	Metropolitan and Urban Area Corridor Projects
3	Non-Traditionally Funded Transportation Projects
4	Statewide Connectivity Corridor Projects
5	Congestion Mitigation and Air Quality Improvement
6	Structures Replacement and Rehabilitation
7	Metropolitan Mobility and Rehabilitation
8	Safety
9	Transportation Alternatives
10	Supplemental Transportation Projects
11	District Discretionary
12	Strategic Priority

Source: TxDOT

The CapEx – C project is fully funded in the 2021 UTP as shown in Table 5. The project uses funds from categories 2, 4, 7, and 12. Categories 2, 4, and 12 are not eligible categories to fund caps. Category 7 funding for the region is approximately $ 36 million per year and has already been committed in the current UTP.

Table 5. CapEx - C Funding Allocation from 2021 TxDOT UTP.

Funding Source	Total	Federal	Federal %	State	State %	Local	Local %
Category 2M	$324.5M	$259.6M	80%	$64.9M	20%	$0	0%
Category 4	$148M	$118.4M	80%	$29.6M	20%	$0	0%
Category 7	$160.5M	$128.4M	80%	$32.1M	20%	$0	0%
Category 12 (TCL)	$659.6M	$527.7M	80%	$131.9M	20%	$0	0%
Category 12 (Texas Transportation Commission Discretionary)	$3.607B	$2.886B	80%	$721.5M	20%	$0	0%
TOTAL TxDOT Design Build Contract	$4.9B	$3.9B		$980M		$0	

Figure 25 shows the funding sources and amounts for Phase 1 and Phase 2 of the Klyde Warren Park project built in 2009 and the Southern Gateway project (9). Both of these projects, in the Dallas area, were driven by local interest and investment including donations from private citizens and non-profits. The Southern Gateway project is a TxDOT design build project that includes a cap funded through local and federal funding. The enhancements to each project were made by locals after the cap was constructed. Klyde Warren Park was constructed as a cap on an already lowered section of freeway.

Klyde Warren Phase I (2009) (TxDOT Contract: Deck,Soil, Basic Landscaping, Tunnel Safety Items)							
Funding Source	Total	Federal	Federal %	State	State %	Local	Local %
CAT 9 - TEP[9] - 2005/2007	$ 25,000,000	$ 20,000,000	80%	$0	0%	$ 5,000,000	20%
CAT 9 - ARRA[1] - 2009	$ 16,700,000	$ 16,700,000	100%	$0	0%	$ -	0%
CAT 10 - Congresssional Demo	$ 98,000	$ 98,000	100%	$0	0%	$ -	0%
CAT 10 - Green Ribbon	$ 723,616	$ 578,893	80%	$ 144,723	20%	$ -	0%
CAT 10 - Governor's Community Achie	$ 265,000	$ 212,000	80%	$ 53,000	20%	$ -	0%
CAT 3 - Local	$ 7,593,541	$ -	0%	$0	0%	$ 7,593,541	0%
Total TxDOT Contract	**$ 50,380,157**	**$ 37,588,893**		**$ 197,723**		**$12,593,541**	
(City of Dallas Contract: Landscaping, Performance Stage, Restaurnats, Plan and Activity Areas, Amenities)							
Funding Source	Total	Federal	Federal %	State	State %	Local	Local %	Private
Private Funds	$ 52,300,000	$0	0%	$0	0%	$0	0%	$52,300,000
Total Dallas Contract	**$ 52,300,000**	**$0**		**$0**		**$0**		**$52,300,000**
	$ 102,680,157							

Southern Gateway Deck Plaza Phase I (2020) (TxDOT DB[2] Contract per AFA[1] with City of Dallas: Deck, Tunnel Safety Items)							
Funding Source	Total	Federal	Federal %	State	State %	Local	Local %
CAT 7 - STP-MM[4]	$ 35,388,000	$ 28,310,400	80%	$0	0%	$ 7,077,600	20%
CAT 7 STP-MM[4](TDC)[2]	$ 12,987,805	$ 10,390,244	180%	$0	0%	$ 2,597,561	20%
Total TxDOT DB CO[10]	**$ 48,375,805**	**$38,700,644**		**$0**		**$9,675,161**	

Klyde Warren Phase II (Fall 2021) (TxDOT Contract per AFA[3] with City of Dallas: Deck, Tunnel Safety Items)							
Funding Source	Total	Federal	Federal %	State	State %	Local	Local %
CAT 7 - STP-BG (FAST Act)	$ 37,500,000	$ 30,000,000	80%	$0	0%	$ 7,500,000	20%
Total TxDOT Contract	**$ 37,500,000**	**$30,000,000**		**$0**		**$7,500,000**	

CapEx Central (2025)							
Funding Source	Total	Federal	Federal %	State	State %	Local	Local %
CAT 2M	$ 324,500,000	$ 259,600,000	80%	$64,900,000	20%	$0	0%
CAT 4	$ 148,000,000	$ 118,400,000	80%	$29,600,000	20%	$0	0%
CAT 7	$ 160,500,000	$ 128,400,000	80%	$32,100,000	20%	$0	0%
CAT 12 (TCL)	$ 659,600,000	$ 527,680,000	80%	$131,920,000	20%	$0	0%
CAT 12 (TTC DISCRETIONARY)	$ 3,607,400,000	$ 2,885,920,000	80%	$721,480,000	20%	$0	0%
Total TxDOT DB Contract	**$ 4,900,000,000**	**$3,920,000,000**		**$980,000,000**		**$0**	

1) ARRA = American Recovery and Reinvestment Act
2) DB = Design Build
3) AFA = Advanced Funding Agreement
4) STP-MM = Surface Transportation Block Program Grant (STPBG)
5) TDC = Transportation Development Credits (Title 43 of the Texas Transportation Code, Part 1 Chapter 5)
6) STP-BG = Surface Transportation Metro Mobility (STP-MM)
7) TCL = Texas Clear Lanes
8) TTC = Texas Transportation Commission
9) TEP = Transportation Enhancement Program
10) CO = Change Order

Figure 25. Funding for Decks Projects in the Dallas Area.

There are also operations and maintenance considerations. For example, the tunnel is required to be inspected every two years at a cost of $500,000. TxDOT is seeking reimbursement from the City of Dallas for these expenses. The City of Dallas must also pay for maintenance of the cap structure including the cap itself, fire and life safety elements,

and operation of fire and life safety elements including full-time camera monitoring. Maintenance for the tunnel and the park on the cap is estimated at $3 million per year, plus the $500,000 tunnel inspection every two years. Additionally, the Federal Highway Administration requires TxDOT to enter into ROW agreements for aerial rights over interstates. If TxDOT were to sell the aerial rights, it would have to determine they were not needed for a transportation use.

Current TxDOT policies will not allow state funding to be used to construct decks, caps or stitches. The City of Austin and TxDOT have agreed to proposed cap and stitch locations, as noted on page 12. This equates to approximately 14 acres. Using the same cost estimates, the costs for this are about $229 million plus $ 2 million each year for maintenance.

But there are benefits to the investment. Klyde Warren Park is run by a foundation with a 99-year lease from the City of Dallas. There is a $5.5 million annual budget for operations which is money raised by the foundation. The city and the foundation work cooperatively to identify and support programming at the park. A planned improvement district surrounds the park and supports the investment.

The local enhancements require close coordination and collaboration between the parties involved in project development. Figure 26 presents the timeline for local enhancements for I-35. TxDOT and the City of Austin would need to enter into an Advanced Funding Agreement similar to that for Southern Gateway and Klyde Warren Phase 2 with the TxDOT and the City of Dallas. TxDOT is working closely with the City of Austin and DAA in the feasibility, cost estimating, and funding agreements necessary for local enhancements. If funds are not available by the TxDOT design build contract execution, the funds could be included later as a change order, similar to Southern Gateway.

Figure 26. TxDOT Local Enhancements Timeline.

CONCLUSIONS

This project's findings produced several broad conclusions and observations. The first is that none of the community concepts could be considered feasible as stand-alone projects. In some cases, there were technical conflicts. In one example, the DAA/ULI plan included concepts for caps or stiches that conflicted with the needs of access ramps between the sunken mainlanes and the surface streets. In another example, Rethink35's replacement of a highway with a boulevard provided a more human-centered surface environment for downtown Austin but did not account for the heavy traffic burden that removing I-35 would impose on the streets of downtown Austin or the extreme delay it would cause travelers coming to or through Austin. TxDOT alternatives show volume increases on I-35 and volume decreases on City streets. Reconnect Austin concept with reduced entrance/exit ramps through downtown, pushes traffic onto City streets primarily in east Austin. Rethink 35 concept which converts I-35 to boulevard also results in increased traffic on City streets primarily in east Austin and decreased traffic volumes along I-35. The Reconnect Austin concept requires substantial third party funding in a constrained time frame.

Nevertheless, many elements of the community concepts can be and have been incorporated into TxDOT's planned improvements, and this work continues as the alternatives are refined. From the DAA/ULI and Reconnect Austin concepts, TxDOT's alternatives include depressed mainlanes and tunnels, new east-west bicycle and pedestrian bridges and street connections, stiches where possible, and a structural foundation that can accommodate caps when TxDOT's partners in the region are able to fund them. Other elements of the community concepts that are being considered include lower design speed for frontage roads and prioritizing transit access. These elements, as part of TxDOT alternatives, can improve safety by lowering crash rates and severity, provide reliable routes for transit, add network connections, and enhance multimodal mobility on east-west connections. Other items will require further study. These include the opportunities to shift frontage roads, use of other streets for property access, other options for downtown access, and opportunities to maximize operational efficiency. These efforts may result in fewer displacements while maintaining access.

TxDOT and the City of Austin are working cooperatively to identify and implement funding strategies for the caps. The city and other partners will continue to work cooperatively with TxDOT to identify innovative solutions that meet the needs of all the users of I-35 in central Austin. Feasible elements can continue to move forward in the design process but must have identified funding before key decision dates in the design process.

REFERENCES

1 CapEx. "VOICES Presentation." July 6, 2021.

2 Reconnect Austin and Black and Vernooy Architecture and Design. "Reconnect Austin: Reimagining I-35." November 2020.

3 Rethink35. Website. https://www.rethink35.com/, retrieved June 28, 2021.

4 Urban Land Institute Advisory Services. *The I-35 Corridor Austin Texas: A ULI Advisory Services Panel Report*. February 2020, p. 6, pp. 21–22.

5 Downtown Austin Alliance. *A New Future for I-35: A Community Project for Enhancing the Public Realm.* Opportunities and Constrains Report, September 2020.

6 City of Dallas. Operations and Maintenance Agreement. Woodall Rodgers Deck Plaza Facility. CSJ: 0196-07-027; 0196-07-029. July 2009.

7 Tim Lomax, Phil Lasley, David Ellis, Bill Stockton, et al. *Mobility Investment Priorities Project*. Texas A&M Transportation Institute, October 2013. http://tti.tamu.edu/documents/TTI-2013-25.pdf, retrieved June 28, 2021.

8 Texas Department of Transportation. Unified Transportation Program. https://www.txdot.gov/inside-txdot/division/transportation-planning/utp.html, retrieved July 29, 2021.

9 Texas Department of Transportation. "Deck Parks in Dallas: A Look at Funding." PowerPoint presentation, April 1, 2021.