



League of Bicycling Voters
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Sent by email

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Re: League of Bicycling Voters comments, as part of the NEPA process, on CTRMA's proposal for inclusion of bicycle and pedestrian accommodations as part of the MoPac Improvement Project

Dear Mr. Espinoza,

On behalf of the League of Bicycling Voters and the Austin bicycling and pedestrian community, thank you for the opportunity to submit comments on the inclusion of bicycle and pedestrian facilities into the MoPac Improvement Project. This is an excellent opportunity to accommodate bicyclists and pedestrians in a safe, efficient, and comfortable environment that will be an example for future projects. I look forward to continuing this dialogue with you after your review of my following comments.

Introduction

This letter is in response to the CTRMA Proposal for inclusion of bicycle and pedestrian facilities as part of the MoPac Improvement Project. The CTRMA Proposal was submitted to the League of Bicycling Voters in August 2011. Subsequent to that, representatives of the bicycling community have corresponded and met with HNTB, CTRMA, TxDOT, CAMPO, and City of Austin representatives to receive further information related to the project. This letter includes information available to date, but answers to several technical questions are still outstanding at the time of this letter.

In August 2011, the CTRMA proposed several bicycle and pedestrian mobility components as part of the project. These are:

- A. Shared-use path between southbound frontage road and right-of-way, from Walnut Creek to Loop 360, for a length of 2.2 miles, at an estimated cost of \$2.3M (Note that this is likely to be funded as a standalone project with STP-MM bike/ped funds, rather than as part of the MoPac Improvement Project.)

- B. Shared-use path under U.S. 183, connecting Shoal Creek Boulevard to Neils Thompson Drive, at an estimated cost of \$0.7M (This project is also likely to be funded as a standalone project with STP-MM bike/ped funds, rather than as part of the MoPac Improvement Project.)
- C. East/West bicycle and pedestrian connectivity across MoPac, at 13 locations (not including Parmer Lane and Lake Austin Boulevard), at an estimated total cost of \$0.8M (Locations shown in Section 4 below.)
- D. Some North/South sidewalk gaps along frontage roads, for a total length of 4 miles, at an estimated total cost of \$1.4M

These projects will certainly improve bicycle and pedestrian mobility in the corridor. We appreciate that CTRMA is taking these steps. **However, our vision of a multi-modal corridor remains. What is most notably missing from the CTRMA’s proposal is a shared-use path along the corridor from Cesar Chavez St. to Parmer Lane. We request that such a shared-use path be funded as part of this project.** More details on our proposed shared-use path can be found below in Section 4 and the Appendix.

This letter is divided into several sections for easier reading:

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Section 1: The need for and benefits of bicycle and pedestrian accommodations in the MoPac Improvement Project corridor

More people on bikes means cleaner air for everyone, less congestion for motorists, increased traffic safety for all road users, lower taxpayer and personal transportation spending, more personal spending within our local economy, healthier lifestyles, and a more pleasant city life experience for all. By adequately accommodating bicycle and pedestrian mobility within the MoPac Improvement Project, we will accomplish all of these benefits.

Build it and they will come: Trips of just a few miles along and across MoPac are typically taken by private automobile. This reliance on the automobile is primarily a reflection of the types and quality of transportation facilities available along the corridor. *Currently, most of the corridor has no bike or pedestrian facilities (aside from an intermittent shoulder along the expressway lanes themselves), and*

almost none of the corridor has bike/ped facilities that serve a broad, mainstream, urban population. Providing bike/ped facilities in the entire project corridor that meet the needs of all ages and abilities (i.e. a broad, mainstream population) will serve unmet demand to go by bike or on foot and will reduce automobile use and congestion.

Mitigation of the negative effects of motor vehicles: By providing high-level-of-service bike/ped accommodations that serve a mainstream population, we will see significant mitigation of the negative effects of private automobile use. These negative effects include:

- **poor air quality** that diminishes the health of every Austinite, and, in the vicinity of the highway, significantly limits outdoor activities and depresses property values
- **greenhouse gases** that are changing our entire planet's climate patterns, including causing a shift in Austin toward a more arid climate
- **noise** that increases personal stress, disrupts or hampers sleep, precludes conversations or hearing wildlife, and significantly limits outdoor activities
- **traffic congestion** for all highway users, including bus mass transit users, commercial shipping operators, commercial vehicle operators, and other motor vehicle users who could not make their trip by another mode even if a high-level-of-service accommodation were available
- **reduced neighborhood mobility** for neighborhoods within several miles of the expressway, since added traffic going to and from the expressway puts an extra load on city streets (that cannot be expanded) so travel on these streets will be more difficult and crossing these streets will be more difficult
- **inefficient urban land use** from the large amount of space needed to provide both the movement and storage of private automobiles at peak periods
- **traffic fatalities**, which are the leading cause of death for people up to age 35, continue to far outpace American fatalities due to war, and account for more Austin deaths than homicide each year
- **poor water quality** from runoff of motor vehicle fluids and other toxins released by motor vehicles
- **reduced life expectancy**, especially in children, **from sedentary lifestyles** void of active transportation (where "active transportation" includes bicycling and walking for transportation needs)

All of these are real negative effects that will be made worse because of adding main travel lanes to the MoPac Expressway.

Simultaneous accommodation will save taxpayer money: Designing and constructing bike/ped accommodations at the time of the larger motor-lane-addition project will reduce overall implementation costs. Construction crews and equipment will already be on hand, and progress can be made on one aspect of the project while another aspect experiences minor delays. Design and construction of the roadway improvements and sound walls could be integrated with implementation of bike/ped facilities. Oftentimes, the needed bike/ped accommodations will be constructed as an integral part of the roadway, and in others, a physically separated shared-use path could share an alignment

with a new sound wall. In both of these cases, the bike/ped accommodation may, for example, share the same slab, foundation, or retaining wall, which can result in cost and time savings. In the case of the roadway, it would be most cost-effective to build bike/ped underpasses as exit and entrance ramps are improved or reconstructed, rather than as stand-alone projects. Also through simultaneous implementation, bridge widenings and other bridge work can take into account providing bike/ped access on those bridges (e.g. with a jersey barrier or a cantilevered bridge component).

Simultaneous accommodation will facilitate multimodal inclusion: In the cases where available space is limited, simultaneous design and construction will also help ensure that all of the transportation modes are considered and accommodated. For example, a minor tweak in the geometry of an expressway entrance ramp may free up just enough space to allow room for a shared-use path. It could also be that to fit in a physically separated, shared-use path along the expressway in some corridor segments that less than ideal dimensions must be used. Some main lanes or shoulders may need to be narrowed to less-than-ideal but adequate dimensions, and the shared-use path may need to be narrowed as well. Also, it may be in some corridor segments that only by incorporating the bike/ped facility into the sound wall itself will the bike/ped facility be able to fit along that corridor segment (or it may be that the sound wall needs to be narrowed to provide room for the bike/ped facility). *A stated purpose of the MoPac Improvement Project is to maximize use of the facility. Providing a shared-use path along the corridor would be part of serving this purpose.*

Simultaneous accommodation will ensure viability of both motor and non-motor aspects: Concurrent implementation will draw federal funding to bicycle and pedestrian improvements in this corridor that would otherwise be hard to come by.

Finally, simultaneous implementation will also help ensure that the positive mitigating effects provided by bike/ped accommodations will begin before the negative community and environmental effects of the additional motor lanes set in.

Use of federal funding requires consideration of bike/ped mobility: Inclusion of high-level-of-service bike/ped accommodations in the overall project will help secure federal funding for a project that seeks to expand a motor vehicle expressway. Federal regulations require consideration of bike/ped mobility as part of highway projects that include federal funding. Furthermore, federal policies specify going beyond just minimal accommodations to instead provide facilities that provide bicycle and pedestrian accommodations on par with motor vehicle accommodations.

An urban expressway requires urban mobility accommodation: The project corridor extends from an urban area to a suburban area that continues to see increases in development. Large tracts of land on the corridor are expected to see substantial residential and commercial development within the next ten years. Examples include the Brackenridge tract and other University of Texas at Austin parcels on Lake Austin Blvd. and the State School property on 35th St. The existing residential skyscrapers of downtown Austin are within a mile of MoPac (less than five minutes by bike, and new highrises continue to be added). These new developments will include higher-traffic destinations than currently exist along MoPac and thus will further increase the demand for a truly multimodal urban corridor. Even with a

new main lane in each direction along MoPac, the expressway will not provide enough throughput of people to prevent congestion on most days. Only by adequately accommodating bike/ped mobility can the throughput be increased along and across the corridor. (Note that even mass transit mobility typically includes a trip by bike or on foot.) Without bike/ped accommodations that serve a mainstream population, even a short trip along or across the corridor will require another automobile to add to the existing and future congestion.

CAMPO policies specify need for urban mobility in this corridor: The Capital Area Metropolitan Planning Organization (CAMPO) 2035 Plan speaks to this expected increase in density by specifying much of the corridor as having the highest priority for accommodating pedestrian mobility. The remainder of the corridor is specified as medium-priority. In the CAMPO 2035 Plan, both of these priority levels specify that pedestrian facilities be included as an essential component of a roadway reconstruction project such as this one.

Mass transit needs bike/ped connectivity: Providing pedestrian and bicycle accommodation in the corridor would bring passengers to mass transit. *Part of the stated purpose of the MoPac Improvement Project is to provide a reliable mass transit route to reduce travel time along the corridor. By providing pedestrian and bicycle access where it does not exist or improving it where access is poor, mass transit will have more passengers and will be more effective at adding throughput to the corridor.* Since many mass transit stops along MoPac are far between and will likely continue to be so, bike access along the corridor itself is especially important. In 2010, the Federal Transit Administration set the bicycle catchment area to a three-mile radius, to further recognize this synergism. To take advantage of potential mixed-mode transportation users, any transit stops on or near MoPac would benefit from a MoPac corridor shared-use path and improved expressway crossings.

Bike/Ped accommodations are low cost: Improving bicycle and pedestrian mobility along the corridor and across MoPac are relatively low-cost ways to expand mobility in the project corridor, especially given the limited amount of right-of-way available. Facilities for bike/ped use can be built at a fraction of the cost of building motor vehicle expressway lanes and interchanges. With many highway projects, adding capacity by providing bicycle and pedestrian accommodations can be done at a lower cost per user than adding motor vehicle capacity.

Bike/Ped network gaps need to be filled: As with most, if not all, Texas highways, the MoPac Expressway is a significant barrier to bicycle and pedestrian transportation. While much of Austin's surrounding street network allows bicycle and pedestrian access at city block increments of a few hundred feet each, MoPac typically provides access in one-mile increments. Furthermore, MoPac itself does not provide bicycle and pedestrian access for all ages and abilities, so access to the few crossings of MoPac is further limited. The result of these infrastructure gaps is that people have little choice but to use private automobiles to cross MoPac and access destinations along MoPac.

This project should not expand motor vehicle mobility more than bike/ped mobility: Since the project is expected to improve motor vehicle mobility and motor vehicle use, it is important to improve bicycle and pedestrian mobility in at least a commensurate way, if not to favor bike/ped mobility. To date, our

accommodation of motor vehicle mobility has far outpaced our accommodation of bicycle and pedestrian traffic in our local TxDOT-jurisdiction transportation network. At the same time, accommodating for motor vehicle mobility has had a direct negative impact on bike/ped mobility. These negative impacts include the creations of numerous network gaps (as mentioned above) and by increasing motor traffic that makes it even more difficult to cross roads in the TxDOT jurisdiction and nearby Austin jurisdiction streets. At the very least, this project should not widen the chasm between motor vehicle accommodation and bike/ped accommodation. Preferably, the balance of motor to bike/ped accommodations should reflect current public goals, as specified in policies from the local to national levels, which seek to catch up bike/ped accommodations to the level of service provided by motor vehicle accommodations.

On-street bicycle routes near the MoPac corridor have numerous traffic lights, stop signs, and motor traffic conflict points: A shared-use path along the corridor would be a significant step toward providing bicyclists and pedestrians with convenience and safety equivalent to that provided to motorists. The best on-street alternative to a shared-use path presents a bicyclist with approximately 18 traffic lights, 32 stop signs, and hundreds of driveway cuts and conflicts points. The traffic lights alone represent a delay of 13.5 minutes (assuming an average wait of 45 seconds per traffic light, on cycles of 90 seconds). If the delay of slowing, waiting, and accelerating from each stop sign is estimated at 15 seconds, then the delay from stop signs is eight minutes. So the total added delay from controlled intersections for the best on-street alternative route is 21.5 minutes. Motorists encounter no stop lights or stop signs along MoPac. A shared-use path along the corridor would allow bicyclists and pedestrians to also avoid all stop lights and stop signs for the same trip. The existing Lady Bird Lake Trail would then provide a stop-light- and stop-sign-free route for the remainder of a trip into downtown Austin.

Furthermore, the best on-street alternative route at 13.5 miles (which is 15% longer than a shared-use path would be) has approximately 2000 conflict points with intersections and driveways, in addition to on-street conflicts with moving and parked motor vehicles. Motorists do not encounter any intersection conflict points along MoPac, and only encounter approximately one dozen merge points. A shared-use path along the corridor with no at-grade crossings would avoid all intersection conflict points with motor vehicle traffic.

Providing bike/ped accommodations meets qualitative federal goals: Finally, the U.S. Department of Transportation recognizes that “Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use.” (from USDOT <http://www.dot.gov/affairs/2010/bicycle-ped.html>)

Section 2: An outline of bicycle and pedestrian facilities that would meet the needs and provide the benefits as described above

The area of need for bicycle and pedestrian accommodation includes the entire MoPac Improvement Project corridor. Since people of all ages and abilities need to move about in the corridor, the bicycle and pedestrian accommodations must provide a level of service to meet those needs.

Since motor vehicle speeds along and across the corridor far exceed 20 mph, physically separated facilities will be needed to accommodate a mainstream population (of all ages and abilities). Also, to provide a similar level of convenience to that provided to motorists on the expressway lanes, bicycle and pedestrian accommodations should be non-stop, with above- or below-grade crossings at intersections with motor vehicles.

These needs will be met with the following improvements to bicycle and pedestrian infrastructure in the corridor:

- 1) A contiguous, non-stop, off-street bicycle path and pedestrian path from Parmer Lane to Lady Bird Lake along the MoPac corridor
- 2) Complete and improved bicycle and pedestrian connectivity for all crossings of MoPac along the corridor
- 3) Improvement of the existing Johnson Creek Trail system, including connections to all trails and urban streets at the Cesar Chavez Street Interchange
- 4) Local, shared-use path connections to destinations adjacent to MoPac

When all destinations are accessible to all ages and abilities (all people who are otherwise capable of leaving their home on their own), then the need will be met. The four items listed above serve as a guide to meeting this need for mobility. For example, can a young person, e.g. a 13-year-old girl (Group C bicyclist), ride a bicycle from her house near MoPac to a destination four miles away on MoPac? Can a 55-year-old man, of average athletic ability (Group B bicyclist), ride a bicycle to and from a bus stop near MoPac to his place of work on MoPac? Is the proposed infrastructure designed to meet these needs, even as it expands the mobility for other people who already have access?

Section 3: Government policies, plans, and regulations governing the MoPac Improvement Project that speak to bicycle and pedestrian mobility

Numerous existing policies govern this project and speak to meeting these basic transportation needs as part of the project. Below are policies, plans, and regulations from several jurisdictions.

Capital Area Metropolitan Planning Organization: The CAMPO 2035 Plan attempts to reflect the Austin metropolitan area's collective community values for transportation planning. Every area transportation project that uses federal money must be consistent with these values, if not precisely, then at least generally. Many items in the CAMPO 2035 Plan indicate that bicycle and pedestrian needs should be met for any area transportation projects.

- The CAMPO 2035 Plan calls for "a balanced transportation system" (p. 3): This includes:
 - "Bicycle and pedestrian facilities"
 - "Transit options", which require access to those transit options, especially via walking and bicycling

- “Context-sensitive design solution”, e.g. pedestrian and bicycle-scaled infrastructure in an urban environment
 - “Improved reliability”, where bicycle and pedestrian mobility have superior reliability to motor vehicle mobility because of the smaller size per unit and relaxed safety margins required for bicycle and pedestrian mobility
 - “Recognizing that we cannot build our way out of congestion”, i.e. adding expressway lanes will not necessarily lead to less congestion on MoPac and *will actually make congestion worse* for any road network leading to/from the expressway, whereas improving bicycle and pedestrian mobility do not increase systemic motor vehicle congestion
 - “Reducing environment impacts”, where expanding motor vehicle capacity is contrary to this goal, and expanding bicycle pedestrian access directly serves this goal
 - “Minimizing cost”, where a) expanding motor vehicle mobility is the most expensive option on a system level, while accommodating pedestrian and bicycle mobility are the least expensive and second-least expensive options, respectively, and b) in this case it is affirmed that pedestrian and bicycle infrastructure would indeed be highly used per the CAMPO 2035 Plan Priority Pedestrian Map and Priority Bicycle Map, to be referenced later
- As stated, “This Plan calls for the region to: ... Expand investments in regional public transportation, bicycle and pedestrian infrastructure, and other projects that support reduced demand on the region’s roadway system” (p. 17), but does not call for expansion of private automobile mobility, as the MoPac Improvement Project is expected to do. This indicates that bicycle and pedestrian infrastructure must at least keep pace with the expanded motor vehicle mobility.
 - Where the CAMPO 2035 Plan speaks specifically to the roadway system, it specifies that bicycle and pedestrian mobility will be accommodated, where feasible: “Regional Roadway System”: “Multimodal Functionality: Federally-funded roadways in urban and suburban areas will be designed to function for multiple modes and uses. Where feasible, roads will be designed to accommodate bicycles and pedestrians.” (p. 23)
 - The CAMPO 2035 Plan clarifies, without speaking to the level of service provided, that “All roadways in the region currently serve as bicycle and pedestrian facilities, except those expressly forbidding access, such as the upper deck of Interstate 35 in Austin.” (p. 38). Note that MoPac Expressway does not expressly forbid either bicycle or pedestrian traffic.
 - The CAMPO 2035 Plan recognizes bike/ped mobility’s role in mass transit: “Connect with Transit: The Central Texas region has recently completed several major transit investments and has plans for many more. Accessing the individual stops by bicycle or walking may be a significant challenge if not addressed soon. Facilities are needed to access transit sites safely....” (p. 38) MoPac is recognized as a future rail and/or bus mass transit corridor in the CAMPO 2035 Plan. (p. 37) Bicycle and pedestrian connectivity will increase the value of mass transit investments along MoPac, and such connectivity is arguably essential to making transit viable.

- Per the CAMPO 2035 Plan: “Connect Recreation and Transportation Bicycle Facilities”. (p. 38) A shared-use path along the MoPac corridor would connect major investments in shared-use path (trail) infrastructure. The Lady Bird Lake Trail is the region’s widely popular trail hub serving both recreational and transportation needs. Access to that trail extends north to Enfield along MoPac via the Johnson Creek Trail System. A short expansion of the Johnson Creek Trail System to the east would provide continuous trail access to the heart of downtown. Expansion to the north, along MoPac, would connect with Capital Metro’s Red Line Trail and the Northern Walnut Creek Trail. A MoPac trail would be the final link in a continuous, grand trail loop: Northern Walnut Creek, Southern Walnut Creek, Lance Armstrong Bikeway, Johnson Creek Trail, MoPac Trail. Furthermore, an expanded MoPac trail north of the Colorado River would extend the utility of an existing and expanding trail along MoPac south of the river. Numerous other bike and pedestrian routes would also connect to the new MoPac facilities.
- Numerous existing and future mixed-use development projects exist along the MoPac corridor, e.g. The Domain. From the CAMPO 2035 Plan: “Enhance Facilities in Mixed-Use Areas”. (p. 39)
- From the CAMPO 2035 Plan (p. 39):

Ensure bicycle and pedestrian facilities are developed in conjunction with roadway projects in populated areas. Except for areas planned to be rural in 2035, roads should at least have facilities such as shoulders and sidewalks with connecting infrastructure to provide access for bicyclists and pedestrians in the future. To ensure adequate right-of-way is available to construct the facilities, jurisdictions should continue to acquire enough right-of-way for planned bicycle and pedestrian improvements.

The Plan specifies bicycle and pedestrian facilities for roadway projects, as a matter of course. Shoulders on MoPac will not provide adequate bicycle access for most people, so a physically separated path is recommended. Note that if the project manager is designating shoulders as the bicycle facility on MoPac as part of the MoPac Improvement Projects, then this should be stated explicitly in project scope and design documents. Being explicit about this will ensure that the value of the shoulders as bicycle facilities can be judged and assessed explicitly, and that facilities will be built to proper specifications, e.g. FHWA or CAMPO guidelines.

- Most of the MoPac Improvement Project is within a high-priority pedestrian district (“Centers and Central Business District Areas”) in the CAMPO 2035 Plan, while the remainder is within a medium-priority pedestrian district (Suburban and Urban). See Priority Pedestrian District Map, p. 41.
- The CAMPO 2035 Plan’s process for evaluating Bicycle Corridor Prioritization (Appendix 11, P. 134: “Facilities” and “Demand” sections), as described, would conclude that MoPac (from Parmer Lane to Cesar Chavez Street) is a medium or high priority bicycle corridor.
- Policy 6: “Use transportation investments to support continued reduction of per capita vehicle miles traveled.” (p. 109) While adding a new main travel lane to MoPac will provide pressure to increase per capita VMT, adding complementary and congruous bicycle and pedestrian facilities will cause per capita VMT to decrease.
- Policy 7: “Consider transportation improvements that increase person carrying capacity, rather than vehicle carrying capacity of the regional transportation system.” (p. 109) Aside from the

“No Build” alternative, none of the five remaining alternatives being considered increase the person carrying capacity of MoPac without increasing the vehicle carrying capacity. (In fact, the person-to-vehicle ratio on MoPac is expected to remain near 1, even after the project.) Since transit-only lanes are no longer being considered, the only viable option to “increase person carrying capacity, rather than vehicle carrying capacity” is to provide bicycle and pedestrian facilities that serve a mainstream population.

- None of the following three policies (p. 109) are served by adding main travel lanes to MoPac, while all are served by accommodating bicycle and pedestrian mobility. If it is inevitable that the main travel lanes are added, the resulting negative impact can be mitigated by implementing bike/ped accommodations that can be used by a mainstream population.
 - Policy 9: “Develop and implement a transportation system that reduces dependence on petroleum.”
 - Policy 10: “Develop a transportation system that minimizes impacts on the 100-year flood plain, Edwards Aquifer recharge and contributing zones, and other environmentally sensitive areas while providing for regional mobility.”
 - Policy 11: “Reduce vehicle emissions through implementation of transportation investments and other activities.”
- Policy 12: “Develop a transportation system that incorporates context-sensitive design principles into the design of transportation projects.” (p. 109) For an urban environment, it is important to provide person-scaled transportation infrastructure, i.e. pedestrian and bicycle infrastructure. This is especially important for the southern section of the project corridor, where the transition is very abrupt between the expressway, car-oriented, human-hostile environment to the neighborhood, person-scaled, social environment. A shared-use transportation path would provide a transition buffer between these two environments.
- The Regional Transportation Policies in the CAMPO 2035 Plan include several bicycle and pedestrian policies (pp. 110-111) that prescribe when and how much resources of a given roadway project should be devoted to accommodating bicycle and pedestrian mobility needs.
 - Definitions for these policies (given on p. 111), include:
 - “Reconstruction” includes “widening to provide additional through travel lanes”.
 - “‘Excessive cost’ is generally defined as cost which exceeds 20% of the total cost of the project or project phase.”
 - Policy 19 states:

Provide pedestrian facilities with all new construction and reconstruction of roadways and bridges shown on the Priority Pedestrian Districts Map as “high” or “medium” priority, unless the jurisdiction constructing the roadway has demonstrated that providing the pedestrian facility is not feasible due to excessive cost.

Since the entire MoPac Improvement Project corridor is within either high or medium priority pedestrian districts, this policy specifies that pedestrian facilities should be

included as part of the project unless the cost is over 20% of the total project cost. The total project cost has been given as \$252.5M, so 20% would be \$50.5M.

- Policy 20 states:

Provide bicycle facilities with all new construction and reconstruction of roadways and bridges shown on the Priority Regional Bicycle Corridors Map as “high” or “medium” priority, unless the jurisdiction constructing the project has demonstrated that providing the bicycle accommodation is not feasible due to excessive cost.

Though the main lanes of MoPac are not specified as priority bicycle corridors in the CAMPO 2035 Plan, the frontage roads are. (As mentioned above, the criteria for determining which roads are priority bicycle corridors would conclude that the MoPac main lanes are a high or medium priority corridor, despite the omission from the Bicycle Priority Corridors Map.) Per Policy 20, bicycle facilities should be included on the frontage roads as part of the project unless the cost is over 20% of the total project cost. Again, the total project cost has been given as \$252.5M, so 20% would be \$50.5M.

- Policy 21 states:

Provide adequate bicycle and pedestrian connections across controlled access facilities within Priority Pedestrian Districts or Priority Bicycle Corridors as part of new construction or reconstruction of controlled access facilities unless the jurisdiction constructing the project has demonstrated that providing the connection is not feasible due to excessive cost.

Per Policy 21, “adequate bicycle and pedestrian connections” should be built across MoPac unless the cost is over 20% of the total project cost.

- Policy 22 states:

Sustain existing pedestrian and bicycle facilities and find ways to improve facilities through roadway resurfacing and other maintenance projects

So per Policy 22, at the very least, the bicycle and pedestrian access on the MoPac main lanes should be preserved. As recommended in Section 1 above, and suggested in Policy 22, the facilities should be improved as part of this project.

- The CAMPO 2035 Plan gives guidance for selecting the appropriate bicycle facility for a roadway like MoPac. From Table 1, found in Appendix 11, p. 132, for an urban roadway with “Average motor vehicle operating speed Over 50 mi/h” and “Average annual daily traffic (AADT) volume ... Over 10,000”, the recommended bicycle facility is “bike lane 6’ or shared-use path”. Though not specified in the table, we recommend a shared-use path for the sake of accommodating all ages and abilities.

Note that previous CAMPO Plans were not as clear about accommodating future transportation needs by transportation mode. A project that was in compliance with previous CAMPO plans by meeting existing transportation mode needs, would not necessarily be in compliance unless it met expected transportation mode needs. The CAMPO 2035 Plan recognizes a continued increase in demand for bicycle and pedestrian facilities, and thus the Plan specifies that new transportation facilities should be built to meet this demand.

The City of Austin: The MoPac Improvement Project scope is contained within the Austin city limits. Furthermore, the project manager, CTRMA, lists the City of Austin as a project partner. The project manager should comply with City of Austin plans, policies, and ordinances, to the extent that they are relevant and possible. For the portions of the project where the City of Austin will be responsible for construction, including expanded access to MoPac, the City of Austin should comply with all plans, policies, and ordinances of the City of Austin.

From the City of Austin 2009 Bicycle Plan Update:

- “The City of Austin should work closely with CAMPO to retrofit state roads with bicycle facilities and to provide the required bicycle facilities on new roadways.” (p. 35)
- An objective action of the 2009 Austin Bike Plan is to “Partner with TXDOT Austin District to facilitate the implementation of this Bicycle Plan.” (Objective Action 4.0.8, p. 224)
- The 2009 Austin Bike Plan recognizes MoPac (from Parmer to Cesar Chavez) as a City of Austin bike route in need of better bicycle accommodation. MoPac Expressway main lanes are listed as part of the Austin Bicycle Network. (See Route 434, Appendix D, Bicycle Network listings by street, p. 36 of 38 or Appendix D, Bicycle Network listings by route number, p. 27 of 33.)
- The “Recommended Bicycle Network” (pp. 135, 138) includes a “multi-use path/trail” along or near MoPac from FM 2222 to Parmer Lane (and beyond). This trail is also referenced as numerous segments, given in Appendix D.
- In the conceptual Austin Trails Master Plan (referenced on p. 39, with a map in Appendix J of the 2009 Austin Bike Plan), the Johnson Creek Trail System is shown as a “Greenway with Existing Trails”.
- The City of Austin intends to significantly increase the percentage of bicycle commuting trips across the city, and specifically in much of the project corridor: "Increase citywide workforce commuter bicycle mode to 2% by 2015 and to 5% by 2020." and "Increase central city workforce commuter bicycle mode to 8% by 2015 and to 10% by 2020." (p. x) "Central city" includes the project corridor south of U.S. 183.

The City of Austin’s Complete Streets policy applies to streets under its jurisdiction, as a way to rebuild its street system to accommodate all types of users, including bicycle and pedestrian traffic. It can serve as a guide of Austin’s values for communicating with other jurisdictions, e.g. CTRMA, TxDOT, USDOT, that operate roads within Austin city limits. Furthermore, as Austin re-builds its streets as Complete Streets, these streets would hopefully mesh seamlessly with road segments under other jurisdictions, e.g. where City of Austin arterials connect with TxDOT overpasses and then reconnect with City of Austin arterials. To ensure this smooth transition, the non-Austin jurisdiction will need to accommodate bicycle and pedestrian traffic. A copy of Austin’s Complete Streets policy is available via:

http://lobv.org/wp-content/uploads/2011/04/Resolution_Bike_Ped_020418-40_2002-04-18.pdf or <http://tinyurl.com/austin-complete-streets-2002>

United States Department of Transportation: The USDOT recognizes, through numerous policies and regulations, the need for projects on federal highways and other federally funded projects to include safe bicycle and pedestrian accommodation. The U.S. Secretary of Transportation can withhold federal

approval for this project if it does not provide safe accommodation for bicycle and pedestrian traffic along the corridor.

The following are general policies for inclusion of pedestrian and bicycle accommodations. From 23 CFR 652.5:

- “The safe accommodation of pedestrians and bicyclists should be given full consideration during the development of Federal-aid highway projects, and during the construction of such projects.” This policy goes beyond specifying just *incidental* or *afterthought* consideration of pedestrian and bicycle accommodation, to specify *full* consideration. Presumably, pedestrian and bicycle accommodations would then be provided where provision of such facilities would not preclude the viability of meeting the stated need and purpose of the project itself.
- “The special needs for the elderly and the handicapped shall be considered in all Federal-aid projects that include pedestrian facilities.” Many elderly and handicapped are unable to operate motor vehicles, and thus require pedestrian accommodations to travel near their homes. Shared-use trails and sidewalks are accommodations that allow access via personal mobility devices. Wherever there is a lack of such accommodations in the MoPac Improvement Project, the elderly and handicapped will be unable to live and move independently (of assistance from other people).
- “Where current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort shall be made to minimize the detrimental effects on all highway users who share the facility.” Since the MoPac expressway main lanes and its accompanying frontage roads (where they exist) are roads shared among motor vehicles, bicycle, and pedestrian traffic, this policy applies. Furthermore, per the CAMPO 2035 Plan, and City of Austin development plans, numerous existing or planned major commercial and public destinations exist along MoPac at every section of the corridor, so bicycle and pedestrian traffic is to be expected in every section of the corridor and this policy applies. Per the above policy, detrimental effects should be minimized. So given the higher motor speeds and volumes (and per FHWA and CAMPO facility guidelines), bicycle and pedestrian facilities should be physically separated from motor traffic in this corridor.
- “Consultation with local groups of organized bicyclists is to be encouraged in the development of bicycle projects.” The project manager, CTRMA, has been working with “local groups of organized bicyclists” upon request by those groups. *Note that this letter was created at the first opportunity (given by the project manager) to respond to the project manager’s proposal for bicycle and pedestrian accommodation inclusion in the project.*

Regarding bicycle and pedestrian access on bridges: Note the following from USDOT policy statement of March 11th, 2010, available via <http://www.dot.gov/affairs/2010/bicycle-ped.html> : “Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges: DOT encourages bicycle and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths.” Also, note the following regulation:

The Secretary has the authority to withhold approval for projects that would negatively impact pedestrians and bicyclists under certain circumstances. Key references in the CFR and U.S.C. include: "In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations." 23 U.S.C. 217(e). Although this statutory requirement only mentions bicycles, DOT encourages States and local governments to apply this same policy to pedestrian facilities as well.

The many bridges within the scope of the MoPac Improvement Project provide bicycle and pedestrian access both a) on highways and urban streets across MoPac and b) along MoPac across urban streets and other highways. While the current bridges along MoPac are not popular for bicycle and pedestrian traffic, they were not originally built to effectively exclude bike/ped access. Over time and through increased motor vehicle use, such bike/ped use on these bridges along MoPac has been gradually discouraged, but no replacement facility has been provided over this time.

The geographic context of MoPac within an urban environment means that MoPac (as an motor expressway) is not an incidental feature of the landscape that has no effect on bicycle and pedestrian access. Rather, its poor initial design (poor, given its urban context), its increased use by motor vehicles, and lack of remediation (at any point in time) through adequate bike/ped access via its bridges has created a substantial effective barrier to bicycle and pedestrian mobility – the very problem that this USDOT policy and regulation attempt to preclude. The present MoPac Improvement Project endeavors to increase the magnitude of the problem by increasing motor vehicle throughput. So to provide balance, the project remedy (of improved bike/ped access) must be strengthened to at least match the increased magnitude of the problem.

In addition to the above information, the Federal Highway Administration (FHWA) also provides design guidance and references at the following webpage:

<http://www.fhwa.dot.gov/environment/bikeped/design.htm>

Texas Department of Transportation:

TxDOT Memorandum: On March 23, 2011, TxDOT issued a memorandum to its district engineers, which complements the USDOT policy statement of March 11, 2010.

The TxDOT memorandum affirms that the NEPA process should consider bike/ped needs: "It is critical that bicycle and pedestrian accommodations be considered and discussed as the need and purpose of a project is defined during the National Environmental Policy Act (NEPA) process, taking into consideration existing and anticipated bicycle and pedestrian facility systems and needs."

Since the MoPac Improvement Project is urban and involves pavement widening, but is not a new construction project, the following applies:

For all urbanized settings, regardless of the type of improvement, the following guidance is provided: ...

2. For construction projects within existing right-of-way, but when the scope of work involves pavement widening, the project plans should:

- *accommodate bicyclists by widening the pavement to either provide a 14-foot wide curb lane for shared use or a 5-foot wide bicycle lane;*
- *include necessary work to ensure all existing ADA curb ramps comply with current standards; and*
- *reconstruct or add sidewalks and crosswalks to ensure a continuous ADA compliant pedestrian route.*

The first of these three specifies bicycle accommodation that does not include physical separation. Later in the memorandum, it states “The dimensions shown above for a wide curb lane or a bicycle lane are minimum values. Where traffic volumes or speeds are high, wider lanes for bicycles may be needed.” Since MoPac traffic volumes and speeds are near the highest that exist for urban roadways, presumably the wide curb lane or bicycle lane would be made wider than the minimum. Nevertheless, such accommodation (without physical separation) would not serve most people’s bicycling needs.

The last of these three specifies that sidewalks be built along the length of the project corridor. The sidewalks would help meet the need for pedestrian mobility as stated in Section 1 above.

Note that if the required sidewalks were widened and properly designed to meet shared-use path engineering guidelines, then both pedestrian and bicycling needs could be met in the same facility. This would result in right-of-way and cost savings.

The TxDOT memorandum is available via: <http://lobv.org/wp-content/uploads/2011/09/Bike-Ped-Memo-to-DEs.pdf>

Texas Statewide Long-Range Transportation Plan: TxDOT recognizes bicycle and pedestrian facilities as a necessary component of a complete transportation system, per the Texas Statewide Long-Range Transportation Plan 2035, adopted November 2010.

Section 4: The current CTRMA proposal for bicycle and pedestrian accommodations, how it takes a step toward meeting the needs, and how it falls short

The current CTRMA proposal: The CTRMA proposal, as of September 9th, 2011, for bike and pedestrian facilities as part of the MoPac Improvement Project, includes two segments of shared-use paths along the corridor, improvements to thirteen of the crossings of MoPac, and completion of some missing sidewalks along the corridor:

- A. Shared-use path between southbound frontage road and right-of-way, from Walnut Creek to Loop 360, for a length of 2.2 miles, at an estimated cost of \$2.3M (Note that this is likely to be funded as a standalone project with STP-MM bike/ped funds, rather than as part of the MoPac Improvement Project.)

- B. Shared-use path under U.S. 183, connecting Shoal Creek Boulevard to Neils Thompson Drive, at an estimated cost of \$0.7M (This is also likely to be funded as a standalone project with STP-MM bike/ped funds, rather than as part of the MoPac Improvement Project.)
- C. East/West bicycle and pedestrian connectivity across MoPac, at 13 locations (not including Parmer Lane and Lake Austin Boulevard), at an estimated total cost of \$0.8M:
 - a. Park Bend Drive (pedestrian improvements only)
 - b. Duval/Burnet
 - c. Braker
 - d. Loop 360
 - e. Steck
 - f. Anderson / Spicewood Springs
 - g. Far West (includes entry/exit modifications to the Far West trail)
 - h. RM 2222 / Northland Drive
 - i. 45th St
 - j. 35th St (includes a connection to West 34th St. via Happy Hollow)
 - k. Westover
 - l. Windsor (includes a north-south bike crossing at Windsor entry/exit ramps)
 - m. Enfield (pedestrian improvements only, but widen south sidewalk to better accommodate bike traffic)
- D. Some North/South sidewalk gaps along frontage roads, for a total length of 4 miles, at an estimated total cost of \$1.4M

The total project budget is \$252.5M. So at \$5.2M for bike/ped accommodations, these projects constitute 2.1% of the total project budget. If item A and B above are funded as stand-alone projects via STP-MM funding, then the bike/ped components would constitute less than 1% of the total MoPac Improvement Project budget.

How the CTRMA proposal takes steps toward meeting the needs specified above (in Section 1): The two proposed shared-use paths create good off-street bike connections where improved bike connectivity is most needed. (Note that the Walnut-Creek-to-360 shared-use path is funded as a standalone project, independent of the MoPac Improvement Project.) The City of Austin, the League of Bicycling Voters, and other local bike advocates are in agreement that these are the highest priority.

The improved MoPac crossings, which are within TxDOT jurisdiction, will close gaps in the City of Austin's arterial bike network. These are the only routes across MoPac, so improvements here will help bring together disconnected parts of Austin's bike network. Providing bike lanes over MoPac will meet the minimum local standards for bicycle accommodations in order to match with the current City of Austin standards.

The sidewalks improvements along the frontage roads complete the sidewalks in areas where sidewalks already exist, but are so far incomplete. Completion of these sidewalks will connect existing businesses, where currently grass or dirt trails provide the only pedestrian connectivity.

The vision for bike and pedestrian accommodation throughout the corridor remains: Indeed, the CTRMA proposal advances toward the vision of “complete streets” where the corridor is available to all people, whether by car, by bus, by bike, or on foot. However, the level of service provided to motor vehicles is far beyond what the corridor offers to those going by bike or on foot.

The main function of the MoPac corridor is to provide convenient, non-stop mobility to people along the corridor. We still have the vision where this mobility is available to people of all ages and abilities to go by bike and to walk.

A major component of this vision is a continuous, non-stop shared-use path along the entire corridor. The current CTRMA proposal does not include this.

Section 5: Possible remedies to close the gap between CTRMA’s current proposal and completing the needed bicycle and pedestrian accommodations

We have several recommendations for how the MoPac Improvement Project can come closer to accommodating bicycle and pedestrian mobility throughout the corridor. These recommendations, when combined with the existing offered items A-D above in Section 4, would be unlikely to cost more than 15% of the total project cost.

Add facilities to the proposal:

1. Add a shared-use path, from Parmer Lane to RM 2222, between the northbound main lanes and the northbound frontage road, for a length of 7 miles, at an estimated cost of \$23M. A continuous path here would provide much-needed connectivity for bicycle mobility where it does not exist. It would connect northwest suburban Austin closer into the urban core.
2. Add a shared-use path, between the northbound main lanes and the right-of-way, from Enfield to RM 2222, for a length of 3.5 miles. (No estimated cost is available yet from CTRMA.) This trail would significantly extend the metro-area’s main trail hub, which is the Lady Bird Lake Trail, and would provide a continuous trail into downtown Austin. We would be happy to work with the CTRMA to determine a suitable shared-use path alignment through this challenging section of the MoPac corridor. See appendix for a possible alignment.
3. Add bicycle improvements to the Park Bend Drive crossing. Though there is a nearby trail planned, this street serves its own transportation purpose and is essential to bicycle mobility.

To the extent that funding the shared-use paths is a constraint, consider the following cost-saving options:

4. The first phase of shared-use paths can include at-grade crossings where possible. The separated grade crossings can be funded later as stand-alone projects by CTRMA or other jurisdictions.
5. Connections between the shared-use paths and the greater street network could be few in the first phase. More connections could be funded later as stand-alone projects by CTRMA or other jurisdictions.

6. Other path amenities will help the public to make the most of the paths, but if funding is constrained, these can be added later.

Future bike/ped facilities should not be precluded: If some components cannot be funded at this time, e.g. the shared-use paths specified in 1 and 2 above, then this project should not preclude their future construction. This is especially important for segments south of RM 2222 where the right-of-way is narrow. Per U.S. 23 CFR 771.111(f), available via <http://environment.fhwa.dot.gov/projdev/docueis.asp> the roadway project must “not restrict the consideration of future transportation alternatives”. To preserve the space needed for a shared-use path, there will likely need to be design exceptions for roadway elements, especially from 45th St. to Hancock Dr.

More information is needed from CTRMA: To understand the CTRMA proposal for bike/ped facilities and its context with the MoPac Improvement Project, some additional information is needed.

- I. How do bicyclists navigate the MoPac corridor? This question needs to be answered for bicyclists of various abilities: Group A, Group B, and Group C. Numerous destinations exist along the highway and its frontage roads, and other destinations (e.g. 35th St. rail station and redevelopment) are proposed within the project’s useful lifetime. In other words, what is the existing or proposed bike network, if any, that substitutes for the lack of connectivity along MoPac?
- II. What is a cost estimate for a shared-use path from Enfield to RM 2222, as described above in 2? It would be helpful if this cost estimate were subdivided into several segments of the length, from Enfield to RM 2222.

Our recommendations nevertheless do not address all of the bicycling and pedestrian mobility needs in the MoPac corridor. However, they address the top priorities and do go a long way toward meeting the overall needs. They also represent a very reasonable and affordable bike/ped complement to the expressway lane improvements.

Conclusion

The CTRMA proposal for bike/ped facilities as part of the MoPac Improvement Project addresses some of the need for bike/ped mobility in the corridor. However, it falls far short of bringing bike/ped accommodations up to a level so that most people could use them.


In fact, much of the MoPac corridor is left out of the CTRMA proposal. In the neglected sections, CTRMA is relying upon existing City of Austin streets that cannot provide the same level of service that a shared-use path would. The continuity and physical separation of a shared-use path allow efficient, safe, comfortable, and convenient travel that regular city streets do not provide. While motor traffic is served with an expressway, bike/ped traffic would see no equivalent service improvement, if no full-corridor shared-use path is included. Furthermore, existing and future destinations on MoPac itself will never be served by other parallel streets.

A balance must be achieved that provides bike/ped mobility along with the improved motor vehicle mobility. The Environmental Assessment (EA) should recognize the negative impacts of adding motor vehicle travel lanes. At the same time, the EA should recognize that bicycle and pedestrian improvements will provide net positive impacts on air quality, water quality (both during construction and in daily use), noise pollution, traffic fatalities and injuries, cultural vitality, and neighborhood connectivity.

If you build it, people will come: Experience shows that, if constructed, bicycle facilities will be effectively utilized. Portland, Oregon currently has 6.0% bicycle commuters after beginning substantial bicycle infrastructure investment in the early 1990's. Minneapolis and Seattle are catching up after similar investments. Copenhagen, Denmark currently has a remarkable 37% bicycle commuters as a result of serious investments beginning in the 1970's, and they continue to believe in building upon their success.

Thank you for your time on this matter. I will be following the progress of this project, and I look forward to seeing the elimination of the many gaps in Austin's bicycle and pedestrian mobility network. In the meantime, I look forward to CTRMA's responses to the specific proposals and questions in Section 5 above, and to the justification for these proposals as given elsewhere in this letter. Please let me know how I can assist.

Sincerely,



Tom Wald
Executive Director

cc: Mr. Steve Pustelnyk, Director of Communications, CTRMA
Mr. Joseph Carrizales, PE, TxDOT Austin District
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Mr. Kon Kwan, PE, TxDOT Austin District
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Mr. Paul Terranova, PE, HNTB
Mr. Justin Ham, PE, Urban Engineer, FHWA
Ms. Elizabeth Hilton, PE, Area Engineer & Bike/Ped Coordinator, FHWA
Mr. Greg Griffin, AICP, Bicycle & Pedestrian Planning, CAMPO
Mr. Chris Riley, Austin City Council, and CAMPO Policy Board
Mr. Mike Martinez, Austin City Council
Ms. Annick Beaudet, AICP, Neighborhood Connectivity Division, Public Works, City of Austin
Mr. Robin Stallings, Executive Director, BikeTexas
Mr. Jeb Boyt, Austin Metro Trails and Greenways
Mr. Hill Abell, Austin Metro Trails and Greenways
Ms. Eileen Schaubert, Vice President, Austin Cycling Association
Mr. Lane Wimberley, Board President, League of Bicycling Voters

Appendix

Description of shared-use path from Enfield to RM 2222: Below is a detailed description of how a shared-use path can fit in the existing corridor, from Enfield to RM 2222, for a length of approximately 3.5 miles. The path would generally route between the northbound main lanes and the TxDOT right-of-way line. Specifications below use the currently proposed roadway design made available from Kon Kwan of TxDOT on 9/8/11, except insofar as “design exceptions” are recommended below. The shared-use path recommended here is in addition to the bike/ped accommodations that CTRMA has proposed to date.

The description below is an approximate possible alignment. Various factors may necessitate realigning the shared-use path within the right-of-way, or perhaps even outside of the corridor right-of-way. Such factors include placement of sound walls, entrance/exit ramps, and topography. *We would be happy to work with the CTRMA to determine a suitable shared-use path alignment through this challenging section of the MoPac corridor.*

Note that we are requesting design exceptions for the roadway, between 45th St. and Hancock Dr. to provide more space to accommodate the shared-use path. Either the buffer to the right of the northbound managed lane could be narrowed from 5' to 2' (as is done elsewhere in the project), or the outer northbound shoulder could be narrowed from 6' to less than 6'. Note that precedent exists between 35th St. and 45th St. for reducing the managed lane buffer. Also, a segment of 5' buffer can still remain in the vicinity of 45th St. to allow for emergency pullovers within the managed lane. There is also precedent elsewhere in the project for narrowing the outer northbound shoulder to less than 6'.

The pinch points noted below are comparable to those on existing shared-use paths in Austin (e.g. Shoal Creek Trail) and other U.S. cities (e.g. Minneapolis). We prefer a narrow path in this corridor over no path at all, just as a one-lane bridge on a road is better than no bridge at all.

Below is a tentative alignment for a shared-use path beginning at the terminus of the existing Johnson Creek Trail at Enfield Road, and ending just north of RM 2222:

- The path uses a CTRMA-proposed expanded sidewalk to go east under MoPac. Alternatively, a wider shared-use path could be constructed above the street grade in the area of the existing sidewalk.
- The path makes a 270-degree clockwise turn to ascend to the grade of MoPac main lanes.
- **Enfield Road:** The expanded bridge over Enfield includes a shared-use path.
- The path descends to below the Enfield northbound entrance ramp.
- The path continues along between the sound wall and TxDOT ROW, with substantial space.
- The path passes through a 7'-wide pinch point. (This assumes existing CTRMA roadway design.)
- The path continues through an 11'-wide corridor, between the proposed sound wall and TxDOT ROW, for approximately 750'.
- The path continues along Newfield Lane, in City of Austin ROW.
- The path enters an 18'-wide corridor of TxDOT right-of-way.

- **Windsor Road:** The expanded bridge over Windsor includes a shared-use path.
- The path descends to below the Windsor northbound exit and entrance ramps.
- The path continues along between the sound wall and TxDOT ROW, with substantial space.
- The path continues through an 11'-wide corridor, between the proposal sound wall and TxDOT ROW, for approximately 2500'. However, for much of this corridor, the TxDOT ROW is adjacent to what is likely City of Austin land.
- **Westover Road:** The path either continues inside or outside of the entrance/exit ramps:
 - Inside route: a) The path descends to below the Westover northbound exit ramp. b) An expanded bridge over Westover includes a shared-use path. c) The path descends to below the Westover northbound entrance ramp.
 - Outside route: The path continues on a new bridge over the exit ramp's free right-turn lane, Westover Road, and the entrance ramp's receiving free right-turn lane from Westover Road.
- The path continues along between the sound wall and TxDOT ROW, with substantial space.
- The path continues along between the sound wall and TxDOT ROW, with at least 20' of space, but for two exceptions. There are two utility poles here that create pinch points of 14'-wide and 17'-wide each.
- The path continues toward 35th St. between the sound wall and TxDOT ROW, with substantial space.
- The path meets with the CTRMA-proposed connection to West 34th Street.
- The path descends to below the 35th St. northbound exit and entrance ramps.
- **35th Street:** The path continues under 35th St.
- The path continues along between the entrance ramp (and main lanes) and TxDOT ROW, until the end of the TxDOT Hubbard office complex, which is at approximately 41st St. There is approximately 17' of space between the main lanes and TxDOT ROW. One utility pole creates a pinch point of 12' wide.
- The path either exits to Jackson Ave. or continues along MoPac:
 - Jackson Ave. route: a) Shared-use path continues on City of Austin ROW along Jackson Ave. to Bull Creek Rd. b) Path continues along Bull Creek Rd. c) Path continues along 44th St. d) Path re-enters TxDOT ROW. e) Path descends to below 45th St. exit ramp.
 - MoPac route: a) Shared-use path is elevated above main lanes, due to constricted ROW here. b) Path is incorporated into proposed sound wall, due to constricted ROW here. c) Path either goes over 45th St. exit ramp, or descends to below 45th St. exit ramp.
- **45th Street:** The expanded bridge over 45th St. includes a shared-use path.
- The path continues between the main lanes and TXDOT ROW, with substantial space.
- The path continues through a narrow corridor of approximately 6'-10, between the proposed sound wall and TxDOT ROW, for approximately 200'. *A design exception for the roadway would provide more space to accommodate the shared-use path: Either the buffer to the right of the northbound managed lane could be narrowed from 5' to 2' (as is done elsewhere in the project), or the outer northbound shoulder could be narrowed from 6' to less than 6'.*
- The path descends to below the 45th St. northbound entrance ramp.

- The path ascends to the grade of the main lanes.
- The path continues through a 6'-8' wide corridor, between the proposed sound wall and TxDOT ROW, for approximately 1700'. A design exception for the roadway would provide more space to accommodate the shared-use path, beyond the 6'-8' specified. Either the buffer to the right of the northbound managed lane could be narrowed from 5' to 1' (as is done elsewhere in the project), or the outer northbound shoulder could be narrowed from 6' to less than 6'.
 - Also in this section are four utility poles. These constitute further pinch points, where the path would either divide in the middle, or be narrowed to go around the utility poles.
- **Hancock Drive:** The path continues along MoPac under the Hancock Drive bridge.
- The path continues through a 12'-wide corridor, between the main lanes and TxDOT ROW, for approximately 1000'. The path begins at the grade of the main lanes. Then the path either continues along the grade of the adjacent cemetery (Austin Memorial Park), or is cantilevered to the adjacent MoPac lanes.
- The path descends to below the RM 2222 northbound exit and entrance ramps.
- **RM 2222:** The path ascends to an expanded bridge over RM 2222, which includes a shared-use path.
- The path continues to the north between the MoPac main lanes and the TxDOT ROW, with substantial space.

--- END ---