
Appendix D

Dismissed Alternatives Memorandum (On CD-ROM)



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MEMORANDUM

TO: Jim Grube, Hennepin County
Scott Pedersen, MnDOT

FROM: Samuel Turrentine, AICP

DATE: January 22, 2016

RE: Dismissed Alternatives Memorandum
SEH No. HENNC 113114 14.00

This memorandum provides a complete description of the Dismissed Alternatives for the I-35W and Lake Street Improvement Project Environmental Assessment (EA). As described below, the design of the multimodal transit station was studied for type, location, and platform configuration at the freeway level. Rehabilitation and replacement alternatives for the Braid and Flyover Bridges were also considered, along with MnPASS and freeway access alternatives.

Dismissed Transit Station Types

Stations are generally categorized into the following three types, based on their impacts to service operations:

- On-Line Stations – Located within the vehicle runningway and the transitway vehicle can access the station without leaving the runningway (e.g., 46th Street Station).
- In-Line Stations – Located adjacent to the vehicle runningway (e.g., the existing outside shoulder bus stops on I-35W at Lake Street), typically along freeway interchange ramps.
- Off-Line Stations – Require transitway vehicles to exit the runningway and require several turning movements resulting in potential traffic delays that impact transitway service speed and reliability, especially during peak travel times.

The last two station types were dismissed from further consideration because they are not compatible with transit use of median managed lanes which exist in the broader I-35W corridor. The dismissed station types would not allow for the reinstatement of northbound transit routes to Lake Street, which have been suspended by Metro Transit during peak periods due to weaving problems from the existing left side transit lane to the right side transit stop on I-35W.

Dismissed Transit Station Platform Location Alternatives at Freeway Level

MnDOT and Metro Transit evaluated four location options for the transit station platform at the freeway level:

- At Midtown Greenway,
- Between Lake Street and the Midtown Greenway,
- Continuous Station (Lake Street to the Midtown Greenway), and
- At or Slightly North of Lake Street.

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The first three options were dismissed from further consideration because the sites failed to maximize the convenience and minimize the travel times for transitway passengers and vehicles under existing and planned regional transitway future conditions (e.g., METRO Orange Line BRT and Midtown Corridor).

Dismissed Freeway Level Platform Configuration Alternatives

MnDOT and Metro Transit evaluated numerous variations of three on-line transit station platform design alternatives at the freeway level including a Shared Center Platform (similar to the 46th Street Transit Station), a Split Platform, and an Off-Set Split Platform. The technical memorandums dated September 20, 2011, October 19, 2011, and November 7, 2011 in Appendix G of the EA provide a summary of the process used to develop recommendations regarding a preferred configuration for the transit station platform in the median of I-35W and in the proximity of Lake Street.

In total, eleven different configurations of the freeway level platform were considered. Drawings of each scheme are included in Appendix G of the EA and the evaluation findings are summarized in Table 1.

Table 1 – Freeway Level Platform Configuration Alternatives Screening Results

Concept ID	Freeway Level Platform Configuration Description	Screening Results
SK-1	This concept is similar to the 46 th Street and I-35W center platform.	Dismissed – This concept was eliminated because it does not allow a bus which is loading or unloading a person with a disability to be passed by another bus.
SK-2	This concept is a center platform design with bays at the ends of the platform which allows passing of buses loading and unloading.	Dismissed – This concept was eliminated because it does not allow passing of a bus at all locations along the platform such that a stalled bus at rear of the station would inhibit the passing of the bus in a 16-foot width.
SK-3	This concept is a center platform design with bays in the middle of the platform and has a wider platform at the ends for added space for vertical circulation.	Dismissed – This concept was eliminated because it does not allow passing of a bus at all locations along the platform such that a stalled bus at the ends of the station would inhibit the passing of the bus in a 16-foot width. Another negative concern is the buses leaving the station would not have a straight movement.
SK-4	This concept is the split platform with a center barrier with a 58-foot width.	Dismissed – This concept was eliminated because it does not allow a bus which is loading and unloading a person with a disability to be passed by another bus.
SK-5	This concept is a split platform with a 74-foot width with a center barrier with two 12-foot lanes adjacent to each platform to allow buses loading and unloading a person with a disability to be passed by another bus.	Dismissed – This concept was eliminated because the 74-foot width exceeds the right-of-way footprint from the 2004 Access Project ¹ .
SK-6	This concept is a platform design with a center lane which allows buses traveling in either direction to pass a bus which is loading and unloading. The station width is 60 feet which can be accommodated if shoulder width exceptions are granted from FHWA and MNDOT.	Dismissed – This concept was eliminated due to safety concerns raised by Metro Transit (see discussion following this table).
SK-7	This concept is a split platform with bays enabling a bus to pass a bus which was loading and unloading. The width of the station is 78 feet.	Dismissed – This concept was eliminated because it exceeded the right-of-way footprint in the 2004 Access Project ¹ .
SK-8	This concept is a split platform design with a staggered center barrier.	Dismissed – This concept was eliminated because it does not allow a bus to pass another at any point along the platform. In addition, the platform width of 9 feet did not allow adequate room for vertical circulation at the ends of the platform.
SK-9	This concept is a center platform design with 22 feet wide bus lanes on each side.	Dismissed – This concept was eliminated because the overall length was not sufficient to provide room for 5 buses (2 loading/unloading and up to 3 waiting) within the platform area.
SK-10	This concept is a split design with a center barrier which widens at the tail end of the station to allow extra width for the vertical circulation area while still maintaining a 16-foot wide thru lane.	Retained – This concept is the Preferred Alternative.
SK-11	This concept (Shared Platform Concept) is a center platform with 22 feet wide bus lanes allowing a bus to bypass another which is loading or unloading. The width of the station is 66 feet and would require a greater degree of design exceptions for FHWA and MNDOT than needed for a 58-foot configuration.	Dismissed – This configuration, with the required bus cross-over to enter and exit the station, presents a potentially unsafe situation should a private vehicle (car, truck, motorcycle) enter the station by mistake. There have been no incidents like this at the 46 th Street station; however, if an incident did occur it could be very serious because it could result in a head-on crash. As such, this concept was eliminated from further consideration.

¹ Previous preliminary design and public involvement engagements (the 2004 Access Project) established an overall freeway, access ramp, and local street improvement concept that was accepted by the Minneapolis City Council and Hennepin County Board. The current design effort acknowledges the 2004 footprint as the maximum project size that may be potentially acceptable to stakeholders and decision makers.

The remainder of this section outlines Metro Transit's concerns regarding the dismissed SK-6 Concept.

It is Metro Transit's belief that pedestrian safety requires preventing pedestrian crossing at the freeway level entirely. A three-lane section would not allow for fencing to deter crossings but would likely lead to a need for controlled crossings as preventing crossings would not be achievable. Controlled crossings, by signal, crosswalk, or other, would serve to promote crossings at the freeway level and increase conflicts with bus operations. This is contradictory to what Metro Transit feels is required for pedestrian safety: all pedestrian movements from the southbound to northbound platform must happen at the mezzanine level. Metro Transit has plenty of locations, both at LRT stations and bus loading, where experience has shown that providing fencing or a physical barrier has substantially reduced or eliminated pedestrian crossings that had been prevalent.

Another concern for Metro Transit is that as currently designed there are no gate arms or other physical deterrents (besides likely signage and striping) that would prohibit errant vehicles from driving into the station. If a barrier fence is not installed those errant vehicles would be able to readily access the oncoming freeway traffic lanes. Installation of gate arms would be required to prohibit that maneuver. Metro Transit's concern is that the quantity and frequency of buses that would access this station in the peak hours would lead to delays and potential queuing of buses at the deceleration lanes onto the freeway managed lanes. Minimal gate arm delays that exist at 46th Street, where Metro Transit sees substantially less bus traffic, have led to customer complaints.

Lastly, bus operations concerns with a single passing lane do exist though additional operator training and protocols would lessen those concerns. Most of the operation concerns come from the other improvements, i.e. pedestrian traffic control lights, stop signs, gate arms, etc. that may be required by the single lane configuration as discussed above and the potential for associated delays.

Due to all the factors cited above, Metro Transit's position that the lane configuration as currently designed is appropriate and should be carried forward.

Dismissed Rehabilitation Alternative for the Braid and Flyover Bridges

Rehabilitating the Braid and Flyover Bridges was dismissed for several reasons. Both bridges are concrete box girder bridges with single column piers. Rehabilitation would involve upgrading this column/pier cap configuration into a redundant system. In addition, both bridges have experienced considerable concrete spalling and distress in the box girder due to corrosive salts that have leached into the concrete through the years. Rehabilitation of the box girder superstructure of both bridges to retard active corrosion and repair damaged concrete would be much more expensive than to replace both bridges.

Dismissed Braid Bridge Replacement Alternatives

The Braid Bridge carries southbound I-35W over northbound Highway 65 near 24th Street. Replacing this bridge at its current location was dismissed because it is not compatible with the proposed southbound MnPASS lane and center transit station at Lake Street. It is also not compatible with the proposed southbound I-35W exit to Lake Street. Perpetuating the left side landing Braid Bridge would create a major weaving concern as the majority of the MnPASS users and all of the buses will be on southbound Highway 65 and have to merge across three lanes to access the I-35W MnPASS lane and center transit station at Lake Street. In addition, the majority of users of the southbound Lake Street exit originate from mainline I-35W. Traffic exiting to Lake Street would weave across the southbound Highway 65 lanes. For these reasons, replacing the existing structure on the current alignment was not prudent.

Dismissed Flyover Bridge Replacement Alternative

The current configuration of the Flyover Bridge, which provides for the ramp entering westbound I-94 on the right hand side, was dismissed from further consideration based on the findings from an origin-destination study, traffic demand forecasting, and freeway modeling. Overall, there are limited improvements available to mitigate the substantial weaving demands (approaching almost 4,000 vehicles in the PM peak hour) between the existing entrance ramp and the Hennepin/Lyndale Avenue exit. For the detailed traffic findings, see the Draft Interstate Access Request in Appendix G.

Dismissed Northbound Entrance Ramp from Lake Street to I-35W with Auxiliary Lane

An entrance ramp from Lake Street to northbound I-35W was considered but is not being carried forward into the project. It was determined that the improvement would dramatically increase the existing impervious surface area and associated highway runoff and change the existing drainage system to a degree that would require extensive mitigation and cost. The northbound entrance ramp would also impact several residential properties on the east side of 2nd Avenue. With consideration of a partial interchange, priority must be given to a design that will accommodate the later addition of the missing movements and to preservation of right-of-way. To provide continuity, the Preferred Alternative would not preclude constructing a northbound ramp in the future (e.g., the proposed bridges along northbound I-35W at 26th Street, 24th Street and Franklin Avenue are all designed to accommodate an auxiliary lane as part of a northbound entrance ramp).

Dismissed Changes to I-35W at 35th/36th Street Interchange

The I-35W and 35th/36th Street interchange is currently a split diamond interchange with signal control at all four ramp terminal intersections. 35th Street is a one-way westbound roadway and 36th Street is a one-way eastbound roadway. Both 35th Street and 36th Street are 30 mph, Major Collector roadways.

The existing short weave sections on I-35W between 35th Street and 31st Street is a major concern to all governmental entities involved because it contributes to congestion in the corridor. However, due to fiscal constraints and potential impacts, fully addressing the weaving section (e.g., relocation of the existing 35th/36th Street interchange or ramp braiding) as part of this project was implausible. Previous engagements in the project area related to improving the weaving section resulted in considerable resistance from local neighborhoods potentially impacted by the change.

As part of this project, the northbound weaving section was reduced, from 580 to 530 feet, and a full auxiliary lane is provided to the proposed 28th Street exit ramp; the current weaving area does not include an escape lane. The southbound weaving area was extended by approximately 120 feet and the existing auxiliary escape lane was extended from 200 to 400 feet.

Both short weaving sections have reduced weaving demands with the Preferred Alternative. The southbound weaving demands are reduced as traffic has the proposed Lake Street exit ramp to exit upstream of this weaving section; forecasts showed a 25 percent daily reduction in demands at the 35th Street exit ramp. The northbound exit to 28th Street relieves the existing queuing problems from the arterial streets and dissipates the exiting demands to two locations over a much greater distance; relieving the weaving demands at the short weaving section.

The current design of this project does not preclude a future project to address the short weaving issues either by relocation of the existing 35th/36th Street interchange or ramp braiding.

Dismissed Beginning Locations for the Southbound MnPASS Lane along Highway 65 and I-35W

The beginning location of the proposed southbound MnPASS lane was analyzed at three locations along Highway 65 and I-35W. The three alternatives included:

- Beginning near 26th Street along I-35W,
- Beginning along Highway 65 after the eastbound I-94 entrance ramp, and
- Beginning from Downtown.

The evaluation showed that the last two alternatives would remove existing capacity along Highway 65 and create unnecessary congestion for the remaining general purpose vehicles. The two alternatives also did not result in an advantageous situation for the MnPASS lane as there is ample capacity along the proposed Highway 65 without the MnPASS lane. The results of the evaluation can be found in Appendix G of the Interstate Access Request.

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