



MEMORANDUM

TO: Section 106 Consulting Parties

FROM: Angela Tucker, Project Manager

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DATE: February 21, 2007

REFERENCE: Route 250 Bypass Interchange at McIntire Road
VDOT Project: 0250-104-103, PE-101; UPC Number: 60234
Historic Resources
Avoidance and Minimization Alternatives Analysis

Per Section 106 of the National Historic Preservation Act, alternatives that avoid or minimize effects to historic properties have been evaluated for the Route 250 Bypass at McIntire Road Interchange Project. To date there have been seven alternatives discussed by the Section 106 Consulting Parties. There were also three alternatives discussed in the draft Environmental Assessment (EA)/ draft Section 4(f) Evaluation that would avoid effects to known historic properties.

The purpose of this memorandum is to describe these alternatives (including alternatives discussed in the draft EA) and summarize their characteristics. Based on the project team's evaluation, none of the avoidance or minimization alternatives offer a reasonable transportation solution for the project. The exception to this is Alternative 10 (TSM). Some elements of the TSM alternative could be incorporated into other project alternatives (see Pedestrian and Bicycle text under Alternative 10, below). The summaries in this memo are being provided in advance of discussion at the scheduled February 26 Consulting Parties meeting.

It should be noted that some consulting parties presented alternatives assuming that they could be replace McIntire Road Extended. However, the interchange project has independent utility from the McIntire Road Extended project, and thus minimization analysis made for the interchange project regarding the removal of McIntire Road Extended is inappropriate. McIntire Road Extended is included in the No-Build Alternative and is assumed to be in place in the project team's evaluation of minimization alternatives. This has been done to isolate the impacts associated with the Federal action (the interchange) compared to those not caused by the Federal action.

Alternative 1: Grove Road Improvements

Description: This alternative was previously investigated as Section 4(f) Avoidance Alternative 1 and it includes: upgrading Grove Road to an urban collector / urban arterial roadway; installing a new signal at the Grove Road / Melbourne Road intersection; widening ramps and upgrading the existing Route 250 Bypass interchange at Dairy Road; upgrading the intersection at McIntire Road and the Route 250 Bypass to accommodate right-turn movements from eastbound on the bypass to south on McIntire Road; constructing a new two-lane roadway



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from Meadowcreek Parkway to Grove Road; constructing a bridge over the Norfolk Southern rail line; and removing the cul-de-sac at the eastern end of Grove Road.

Reason for Investigating this Alternative: This alternative was investigated in an effort to provide an alternative route for future traffic using the Route 250 Bypass / McIntire Road intersection. Providing an alternative route avoids impacts to McIntire Park by potentially eliminating the need for proposed improvements at the existing McIntire Road / Route 250 intersection.

Summary: This alternative diverts traffic onto residential streets rather than addressing operational issues and unsafe conditions for motorists, pedestrians, and bicyclists at the Route 250 Bypass / McIntire Road intersection. The alternative also would encourage a considerable growth in traffic along Grove Road. To upgrade Grove Road to provide for the increase in roadway classification and traffic, approximately 60 residences would be impacted with the taking of front yard strips to allow for a wider roadway. Also, without a grade separated interchange, mobility is not improved at the Route 250 Bypass / McIntire Road intersection to allow easier community access into McIntire Park.

This alternative would be more expensive than the interchange alternatives at McIntire Road due to the number of property impacts, the need for bridges and other improvements to clear the railroad and the improvements required at the Route 250 Bypass interchange with Dairy Road. Additionally, the increase in traffic through an established neighborhood, plus the increased potential of cut-through traffic in the neighborhood, would be extremely impactful to the community. Finally, this alternative does not meet the purpose and need for the interchange to provide safe mobility for pedestrian and bicycle access to McIntire Park.

Alternative 2: Widen and Realign the Route 250 Bypass at McIntire Road Intersection

Description: This alternative was previously investigated as Section 4(f) Avoidance Alternative 2. It includes shifting the proposed McIntire Road intersection to the southwest and widening it from 17 lanes to 24 lanes.

Reason for Investigating this Alternative: This alternative was investigated in an effort to accommodate the future Route 250 / McIntire Road traffic while avoiding park and historic resources.

Summary: Shifting the intersection and adding the number of lanes required results in several issues. First, additional lanes must be added to the Route 250 Bypass from approximately Park Street to the railroad bridge. These additional lanes and widening for turn lanes still impacts the park and potentially impacts historic properties adjacent to the bypass. Additionally, moving the intersection far enough to the southwest to avoid the skate park results in severe cut slopes and impacting nearby residences and potential impacts to McIntire Covenant School. Also, this shift requires a shift of the McIntire Road Extended alignment into the slope to the west of the proposed alignment, impacting more park land and potentially impacting the Vietnam Veterans Memorial with the grading that would be required.

A large, at-grade intersection creates a number of additional “conflict points” within the intersection when compared to a grade-separated intersection. The additional lanes also increase



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the number of lanes for pedestrians and bicyclists to cross when traveling through this area, thus reducing safety for these modes of transportation. Because this intersection would be less safe, would not be context sensitive, and would increase the existing barrier to mobility into McIntire Park, it does not meet the project purpose and need.

Alternative 3: Widen Park Street and Improve Park Street Interchange

Description: This alternative was previously investigated as Section 4(f) Avoidance Alternative 3. It would widen Park Street to four lanes from North Avenue to Lyons Avenue; the Route 250 Bypass Interchange at Park Street would be improved; and on and off ramps at the interchange would be converted from two-way to one-way and would be lengthened.

Reason for Investigating this Alternative: This alternative was investigated in an effort to avoid impacts to McIntire Park, McIntire Skate Park, Covenant School, and 501 Park Hill. It is believed that this would meet the projected 2030 traffic demand by diverting a significant amount of traffic from McIntire Road Extended and providing this increased capacity at Park Street.

Summary: This alternative diverts through traffic onto residential streets rather than addressing operational issues and unsafe conditions for motorists, pedestrians, and bicycles at the Route 250 Bypass / McIntire Road intersection. It would not improve mobility at the Route 250 Bypass / McIntire Road intersection to allow easier community access into McIntire Park, however additional facilities could be developed in conjunction with the Park Street interchange improvements. This alternative would impact two additional historic resources (Hard Bargain and Enderly), not otherwise affected by the project and could require the relocation of as many as ten residences and require property acquisition from an additional eight properties.

Alternative 4: Norfolk Southern Railroad Alignment to 250 Bypass

Description: This alternative, suggested by the Consulting Parties, would include construction of a two-way, two-lane roadway from north of McIntire Park and terminate at the Route 250 Bypass. The roadway would generally follow the eastern edge of the Norfolk Southern Railroad alignment and right of way, traveling under Melbourne Road, requiring adjustments and a new bridge at Melbourne Road, and intersect with the Route 250 Bypass with an at-grade intersection.

Reason for Investigating this Alternative: This alternative was investigated as a potential alternative to reduce impacts to the Vietnam Veteran's Memorial, McIntire Skate Park and the Rock Hill Academy Landscape by providing an alternative connection to the Route 250 Bypass and eliminating the need for improvements at the McIntire Road Extended / Route 250 intersection.

Summary: In an effort to minimize impacts to McIntire Park, it is necessary to remain as close to the railroad right of way as possible. This places an at-grade intersection along the 250 Bypass too close to the Rugby Avenue interchange to be safely designed. Moving the alignment away from the interchange sufficiently enough to provide an at-grade intersection would require the alignment to intersect the Route 250 Bypass approximately midway between Rugby Avenue and McIntire Road, thereby causing severe impacts to McIntire Park facilities in this location.



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Additionally, without extending the alignment to the south to Preston Avenue, thereby providing an alternative access route into the City, not enough traffic diverts away from the McIntire Road corridor and an interchange is still required at McIntire Road in addition to this new alignment. Therefore, this alternative alignment would not have the desired outcome of removing traffic from the existing McIntire Road / Route 250 intersection and is insufficient as an alternative to the proposed interchange alternatives.

Modified Alignment for Alternative 4: The project team investigated a similar alignment to the above, paralleling the west edge of the Norfolk Southern Railroad alignment and right of way instead of the east. This alignment was determined to be not feasible due to the impacts it would have on existing McIntire Park facilities and the expense and impacts of having to cross the railroad. Even though this alignment could utilize the existing Rugby Avenue interchange thereby alleviating the spacing issues on the Route 250 Bypass, it would direct a large amount of traffic toward neighborhood streets and any extension to the south would be impractical due to the number of homes, apartments and businesses that would be totally or partially impacted.

Alternative 5: Norfolk Southern Railroad Alignment to Preston Avenue

Description: This alternative is an extension of Alternative 4, extending the improvements further south beyond the Route 250 Bypass and terminating at Preston Avenue. The roadway would generally follow the eastern edge of the Norfolk Southern Railroad alignment and right of way, traveling under Melbourne Road, requiring adjustments and a new bridge at Melbourne Road. An intersection or interchange would be required at the Route 250 Bypass to connect this roadway to the bypass while passing under the bypass and extending to the south. Once south of the bypass, the roadway would continue to parallel the Norfolk Southern Railroad and would terminate at an intersection with Preston Avenue.

Reason for Investigating this Alternative: This alternative was investigated as a potential alternative to reduce impacts to the Vietnam Veteran's Memorial, McIntire Skate Park and the Rock Hill Academy Landscape by providing an alternative connection to the Route 250 Bypass and eliminating the need for improvements at the McIntire Road / Route 250 Bypass intersection.

Summary: Continuing the alignment to Preston Avenue requires substantial offset from the railroad for safety, which would result in severe impact to several residential and commercial properties between Route 250 and Preston Avenue. There would likely be multiple property displacements, especially near the southern end of the alignment.

In an effort to minimize impacts to McIntire Park, it is necessary to remain as close to the railroad right of way as possible. In order to achieve the grade differential to pass under the bypass, this requires significant grading adjacent to the railroad in the vicinity of the Route 250 Bypass. Since the roadway is immediately adjacent to the railroad, all interchange ramps would have to be built to the east of the roadway alignment, potentially in a partial cloverleaf configuration, resulting in additional impacts to McIntire Park.

Additionally, the location of this interchange places it extremely close to the Rugby Avenue interchange, almost making them opposing pairs. The proximity of these two interchanges to each other and the interaction of their ramps and traffic, would likely require slip lanes or some sort of auxiliary lanes to provide access to the ramps outside of the mainline traffic. This type of



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configuration would result in additional lanes along the bypass through both interchanges, requiring significant modifications to the Rugby Avenue interchange and thereby impacting private property. It is likely that these two interchanges, in any configuration, would be too close together to provide safe access and be approved for construction.

Modified Alignment for Alternative 5: We investigated a similar alignment to the above however paralleling the west edge of the Norfolk Southern Railroad alignment and right of way. This alignment was determined to be not feasible due to the impacts it would have on existing McIntire Park facilities and the expense and impacts of having to cross the railroad. Even though this alignment could utilize the existing Rugby Avenue interchange thereby alleviating the spacing issues on the Route 250 Bypass, it would direct a large amount of traffic toward neighborhood streets and any extension to the south would be impractical due to the number of homes, apartments and businesses that would be totally or partially impacted.

Alternative 6: Signalized Diamond, McIntire Road over Route 250 Bypass (Alternative G)

Description: This alternative was presented to the Steering Committee and public in 2006 as Alternative “G”, and is similar to Alternative G1 (one of the Preferred Alternatives). It differs from Alternative G1 in that it would take McIntire Road over the Route 250 Bypass, as opposed to Route 250 Bypass over McIntire Road. Like Alternative G1, Alternative G consists of a diamond interchange with signals where ramps intersect with McIntire Road.

Reasons for Investigating this Alternative: This alternative would keep Route 250 Bypass at approximately the current elevation and McIntire Road would pass over the bypass. This configuration was considered in an effort to compare the potential impacts from grading and impacts to McIntire Park and Section 106 properties. A smaller roadway bridge would be required, resulting in a lower structure cost. Keeping the bypass at or near the current elevation could ease construction as well.

Summary: While this alternative would successfully meet the roadway operational and safety needs of the project, it has a number of issues that make it unacceptable. The alternative would not match existing topography. It would require substantial fill and earth movement compared to Alternative G1 because the McIntire Road and McIntire Road Extended interchange legs would be located in the Schenk’s Branch valley. These roadways would have to be raised to pass over the bypass, resulting in an unusual fill in the natural stream valley and potentially impacting Schenk’s Branch, McIntire Park and the McIntire Skate Park more than in other scenarios. Other impacts to surrounding features proved similar.

This alternative would result in changes to the existing landscape and thus are not as context sensitive as alternatives which take Route 250 over McIntire Road. Schenk’s Branch would restrict lowering of Route 250, so Route 250 could not be constructed any lower than the existing roadway. Furthermore, this alternative would have greater parallel impacts to Schenk’s Branch south of Route 250 due to required fill under McIntire Road. It is likely that this alternative would not result in a noticeable reduction in noise as the grades of the bypass would require truck traffic to climb steeper grades leaving the interchange area.

Alternative 7: Closing Western Park Street Ramps



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Description: This alternative involves eliminating the western Park Street ramps from the existing Park Street / Route 250 Bypass interchange.

Reasons for Investigating this Alternative: This alternative would reduce some of the physical impacts on the Rock Hill Academy Landscape property. The roadways would be further from surrounding residences and historic properties, including contributing elements to the Charlottesville-Albemarle County Courthouse Historic District. The alternative eliminates an awkward two-way ramp condition on the northwest quadrant ramp. It reduces the proximity of the Park Street interchange to the McIntire Road interchange proposed improvements, thereby allowing more flexibility in the design of those ramps and eliminating a weaving condition between the ramps.

This alternative would result in less traffic at the Park Street interchange originating from eastbound Route 250. It would also allow opportunity for bicycle/pedestrian enhancements in the place of the ramps, and perhaps additional front yard for some properties. Closing the ramps could be incorporated into other alternatives and are not considered a stand-alone alternative.

Summary: Insufficient traffic information is available to determine the exact effects of closing the western Park Street ramps. However, it is clear that access to Park Street from eastbound Route 250 Bypass would be more difficult. Closing the ramps would result in more a circuitous route for travelers coming from Route 250 eastbound to reach Park Street and North Downtown destinations. It is also clear that traffic now heading from Route 250 eastbound to Park Street (approximately 300 vehicles in the 2030 peak hour) would use the proposed Route 250 eastbound ramps to McIntire Road. This would require additional capacity for this movement.

It can be logically expected with this alternative that some traffic would be diverted from Park Street to McIntire Road, adding more volume to McIntire Road. Closing the western ramps would also result in more Park Street traffic staying on Park Street north of Route 250 because it will not be able to exit onto eastbound Route 250. This alternative could result in community impacts caused by changes to travel patterns.

Alternative 8: One-Way Pair

Description: This alternative was suggested by the Consulting Parties. Like Alternatives 4 and 5, this alternative would construct a new roadway along the Norfolk Southern railroad alignment. However, unlike Alternatives 4 and 5, the proposed roadway would only be one lane, one way southbound. Northbound would be provided via McIntire Roadway Extended, which would be reduced from its current design to one lane. The two roadways would join together north of Melbourne Road. The southern terminus of the railroad alignment would either be at Route 250 Bypass or at Preston Avenue, similar to Alternatives 4 and 5.

Reasons for Investigating this Alternative: This alternative would have similar advantages to Alternatives 4 and 5, however the footprint of each roadway could be reduced as the travelway would be reduced to one lane. The impacted area of each one-way roadway on McIntire Park and other properties may be less than the area required for a single two-way roadway. In general, the smaller roadways would fit better with the existing topography and context of McIntire Park.



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Summary: Alternative 8 would have similar issues as Alternative 4 and 5, but with slightly less right-of-way required. However, this alternative would cause greater overall impacts to McIntire Park than a two-way roadway. To explain, the construction of each roadway would be reduced by one travel lane or approximately 12 feet. This is only a portion of the impacted area when taking into account bike lanes, shoulders, ditches and necessary grading. Therefore, the reduction of impacts by reducing each roadway is not one half of the overall construction area but is rather a smaller fraction of the overall construction limits of the roadway. The two one way roadways result in more impacts to the park than a single roadway and these impacts would be in two locations of McIntire Park.

Similar to Alternative 4 and 5, Alternative 8 would still require the construction of a new intersection on Route 250 at the railroad alignment. Since this would be a one way configuration, it is likely an interchange would still be required at McIntire Road. Fitting the new connection to the bypass between the existing interchange at Rugby Avenue and McIntire Road would create considerable impact to McIntire Park facilities and may be too close to these interchanges to be feasible.

Alternative 9: Split Interchange

Description: This alternative would split operations between the McIntire Road and Park Street Interchanges on Route 250. The western Park Street ramps and the eastern McIntire Road ramps would be eliminated.

Reasons for Investigating this Alternative: This alternative has similar characteristics to Alternative 7, however, because the two interchanges would operate as one, the use of Park Street and McIntire Road could be more balanced. Eastbound Route 250 Bypass travelers would use Park Street, while westbound Route 250 travelers would use McIntire Road. Furthermore, Alternative 9 would reduce the close proximity of the two interchanges to each other, eliminating the weave between the interchange ramps, and may reduce the impacts to Rock Hill Academy Landscape and 502 Park Hill.

Summary: This alternative would have similar issues as Alternative 7. Park Street (both northbound and southbound) would receive all traffic to and from the Route 250 Bypass east of the interchange wanting to exit in this area. Likewise, McIntire Road would receive all entering and exiting traffic from the Route 250 Bypass west wanting to exit in this area. Signals may also be required at the end of the Park Street ramps to safely accommodate added volumes to and from a singular direction. Queue problems could be created onto Route 250 from the ramp onto Park Street.

Additionally, signing this configuration may be problematic and confusing. For example, anyone on Preston Avenue wanting to access the Route 250 Bypass in an eastbound direction would have to be signed toward Park Street and the interchange. Individuals who miss this signing, either from the north or south, would likely find their way to the proper interchange through neighborhood cross streets.

This alternative could necessitate that both Park Street ramps be widened to accommodate additional volume. Furthermore, both McIntire Road ramps from eastbound Route 250 may require additional capacity to handle volume that currently uses the western Park Street ramps.



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Alternative 10: Transportation System and Travel Demand Management (TSM/TDM)

Description: TSM maximizes the efficiency of the present transportation system through the implementation of low-cost improvements such as installation of high occupancy vehicle (HOV) lanes, introduction or enhancement of bike and pedestrian facilities, addition of turn lanes, signalization at intersections and funding Intelligent Transportation Systems (ITS) measures such as traffic signal optimization. TDM reduces the demand for travel through the implementation of programs and policies to encourage ride sharing, van and car pooling, telecommuting, and the installation of park and ride facilities.

For this project, the most appropriate potential measures are improvements to transit, small scale roadway network improvements, park and ride lots, and improvements to pedestrian and bicycle mobility, all of which are discussed below.

Transit Improvements: The Thomas Jefferson Planning District Commission (TJPDC) has been working to develop a Regional Transit Authority Plan since May 2007. As part of this plan, a technical report from the Regional Transit Authority Plan titled “Service Strategies” (November 2, 2007) identifies the Baseline transit service (including changes planned for implementation by Fall 2008) and presents four options for enhancing transit service under a Regional Transit Authority.

In the Baseline condition, there is no transit service along the Route 250 Bypass or on McIntire Road. Three of the four transit enhancement options from this report include a proposed “Crosstown Route” which would connect the Pantops area to the Barracks Road Shopping Center, traveling as an express bus along the Route 250 Bypass. Option “4A”, the most extensive option, includes a bus line between the Pantops area and Hollymead, which could potentially travel along McIntire Road / McIntire Road Extended. This route would be in addition to the proposed Crosstown Route.

The Crosstown Route would include 15-minute headways and the Pantops-Hollymead route would include 30 minute headways. Each route would be served by a 30-passenger bus. Therefore, the two potential routes that travel through the Route 250 / McIntire Road intersection could carry a maximum of 180 people in each direction (360 people total) during any given hour.

Roadway Network Improvements: A traffic analyses was performed to determine what capacity improvements would be required to achieve level of service (LOS) D in 2030 at an at-grade Route 250 Bypass / McIntire Road Intersection. To achieve LOS D, and assuming no-build conditions of four roadways intersecting, a 24-lane intersection would be needed (See Section 4(f) Avoidance Alternative 2, as described in the draft EA/Section 4(f) Evaluation and summarized in this memorandum).

Capacity improvements at other intersections along Route 250 might also be considered potential elements of a TSM alternative. However, traffic analyses indicate that relieving congestion at adjacent signalized intersections along Route 250 (specifically, Hydraulic Road, High Street, and Stony Point Road) would allow a higher volume of traffic to reach the McIntire Road/Route 250 Bypass intersection during the peak hours.



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Park and Ride Facilities: Park and Ride lots at appropriate locations can be used to remove small numbers of single-occupancy vehicles.

Pedestrian and Bicycle Improvements: Pedestrian and bicycle trips comprise a very small percentage of the total trips in the project area. However, accommodating these modes and increasing safety and access for pedestrians and bicyclists through the project area (both for commuting and recreational use) is an important aspect of the project's purpose and need.

Reasons for Investigating this Alternative: TSM Alternatives would remove single occupancy vehicles from the Route 250 Bypass / McIntire Road intersection, thus reducing some future congestion. The use of TSM techniques could lessen the likely impacts to parks, historic properties, waterways, woodlands, and community facilities in the project area. The alternatives reduce the number of single occupancy vehicles, thus reducing energy consumption. They would be less expensive to implement than the construction of a new interchange.

TSM techniques, such as provision of pedestrian and bicycle access, and accommodating buses, can be addressed as part of other alternatives in addition to being a stand-alone alternative.

Summary: TSM improvements are, by their nature, small in scale. However, future no-build congestion at the intersection would be severe. The AM peak hour volume-to-capacity (v/c) ratio at the Route 250 Bypass / McIntire Road intersection in 2030 would be 1.80, indicating that a 45% reduction in traffic would be required to achieve level of service (LOS) E (i.e., a v/c ratio of 0.99) during that hour. Thus, small-scale improvements alone will not address the project purpose and need.

Analysis performed by TJPDC shows that only limited bus service could be effectively implemented through the project area. Although this service would be valuable for reducing single occupancy vehicle trips, it cannot address the purpose and need for the project alone.

Assuming maximum use of bus service (all bus seating filled, proposed bus service every 15/30 minutes, and all users would otherwise drive a single-occupancy vehicle along the Route 250 Bypass or McIntire Road Extended), the resulting impact of this transit service on the total projected peak hour traffic volume on the Route 250 Bypass would be small: a reduction of 360 vehicles per hour from the total projected 2030 bi-directional peak hour volume of 6,875 vehicles. Thus, removing 360 trips would account for a 5% reduction in traffic volume. A 5% reduction in traffic during the peak hour in 2030 would have a minimal impact on traffic operations at the Route 250 Bypass/McIntire Road intersection.

Improving other intersections along Route 250 would result in more volume reaching the project intersection, resulting in poorer traffic operations and requiring more extensive roadway improvements at McIntire Road / Route 250 Bypass. A 24-lane at-grade intersection at the McIntire Road / Route 250 intersection would not satisfy the Purpose and Need of the project. Specifically, this intersection would not improve safety for motorists, bicyclists or pedestrians because:

- The number of conflict points inherent to a four-way signalized intersection,
- The higher volume of traffic that would be required to pass through these conflict points without grade-separation of through traffic on US 250, and



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- The higher number of lanes pedestrians and bicyclists would have to cross on Route 250 to access McIntire Park, compared to the grade-separated Build alternatives.

Park and Ride lots serve users from a wide variety of origins and destinations. Thus, even if a park and ride were provided near the project area, only a fraction of the trips through the McIntire Road / Route 250 Bypass intersection would be eliminated. Park and Ride facilities alone or in combination with other TSM measures would therefore not address the project's purpose and need.

Although part of the project, pedestrian and bicycle improvements alone (or in conjunction with other TSM alternatives only) would not reduce a large enough number of trips to address the project purpose and need.