

# City of Madison

DEPARTMENT OF



TRANSPORTATION

## Left Turns on Mineral Point Road

Madison Bus Rapid Transit.

January 2021

## Table of Contents

1. Introduction.....	1
2. Left Turn Volumes .....	2
3. Intersection Specific Factors.....	3
4. Recommendation .....	4

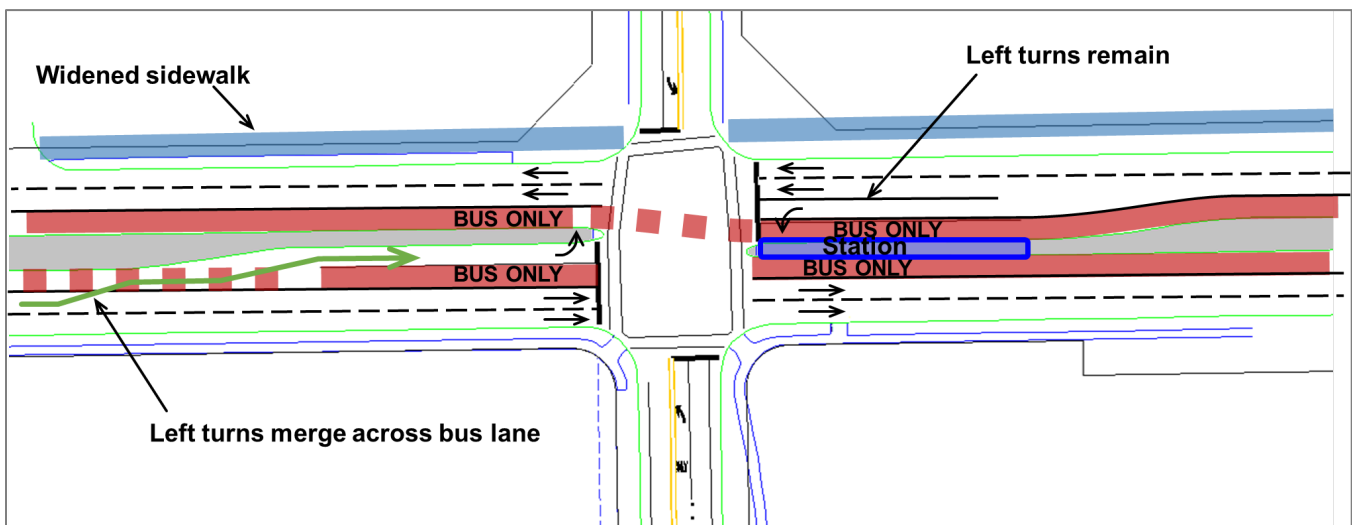
## 1. Introduction

The BRT locally preferred alternative runningway was changed from side running to center running in January 2020. There are five proposed stations along Mineral Point Road:

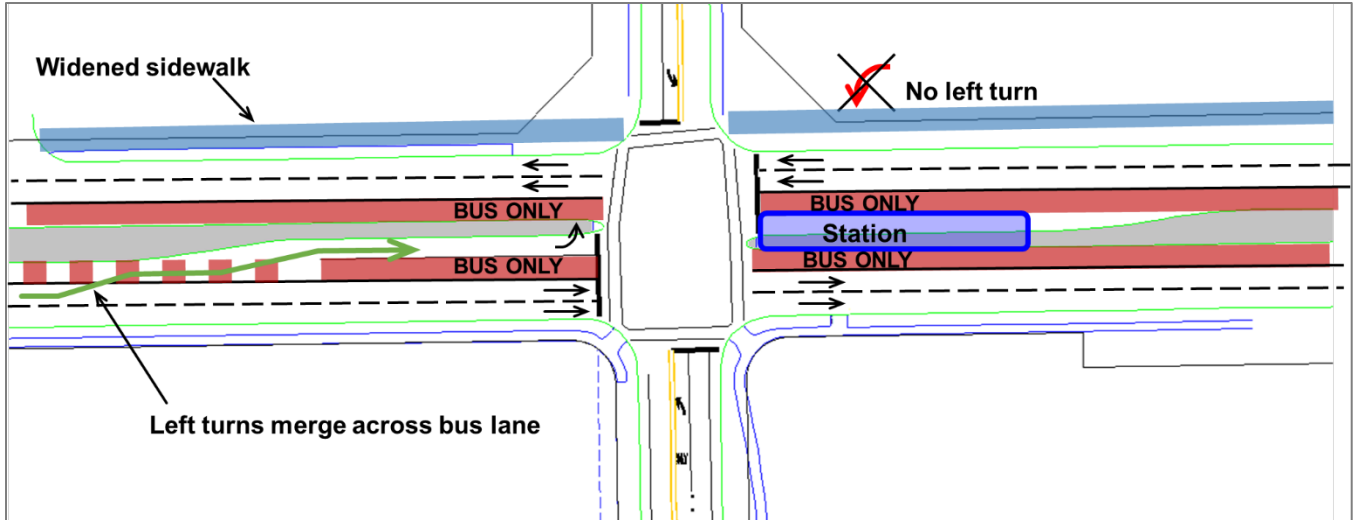
- Rosa Road
- Island Drive
- Grand Canyon Drive
- Westfield Road
- High Point Road

Project staff plan to construct the median station in one of two ways:

**Stations in the existing median space with left turns.** This space is about 12 feet wide and would provide an acceptable design for BRT stations. However, with this design, buses in one direction (traveling from right to left in the diagram) would have to veer left to serve it and then back to the right. Both the eastbound and westbound left turn would need to be a protected-only phase where traffic can only turn left with a green arrow, as opposed to permissive left turns where traffic can turn during a normal green, yielding to oncoming traffic. This signal phasing will increase delay for road users, including BRT, where in one direction buses would wait for a phase when no there are no left turns. The following figure illustrates this type of station arrangement.



**Stations in the full median space with one left turn removed.** This design would fill in one of the left turn bays at an intersection with a station in order to provide a wider station platform of about 24 feet. This design would ameliorate the issues with the first design – buses would travel in a straight line and do not wait for a dedicated signal phase. The remaining left turn would need to be protected only, but there would be a smaller impact on vehicle delay because it would only be in one direction. With a wider median, crosswalk distances would be shorter on one side and passengers waiting for buses would have more room to circulate. The removal of the left turn would require traffic to turn left at the previous or next intersection and use local streets to access their destination. They also could make a U-turn combined with a right turn. Although no access to businesses or homes would be lost, the change would result in more complicated, circuitous travel. The following figure illustrates this station layout.

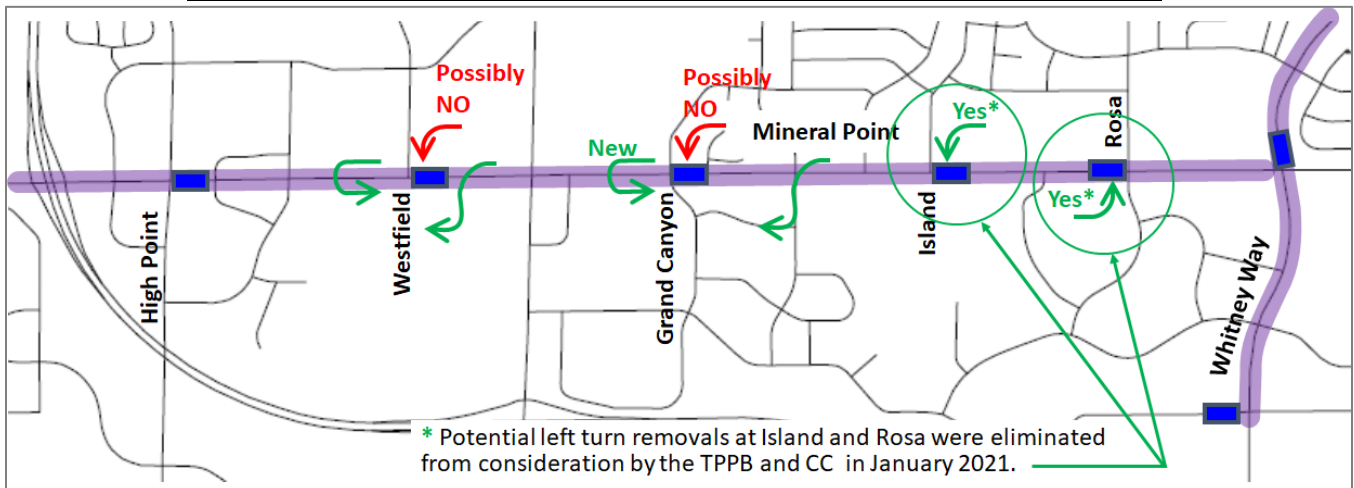


The five stations could be a combination of the two designs. The stations at High Point, Whitney / Mineral Point, and Whitney / Regent are presumed to be the first design with narrower stations because left turns in all directions are needed for basic road network circulation. The four remaining stations on Mineral Point Road – Rosa, Island, Grand Canyon, and Westfield – can be either design configuration. At the

Although either the eastbound or westbound left turn could be removed with the station on the west or east side of the intersection respectively, Transportation staff recommend the following for each of the four potential stations should the design with left turn removals be chosen:

- **Rosa Road \*** – Remove eastbound left, station on west side, new EB U-turn provided east of intersection
- **Island Drive \*** – Remove westbound left, station on east side
- **Grand Canyon Drive** – Remove westbound left, station on east side, new WB U-turn provided west of intersection
- **Westfield Road** – Remove westbound left, station on east side

**Recommended Station Locations and Potential Left Turn Removals with Altrnate Routes**

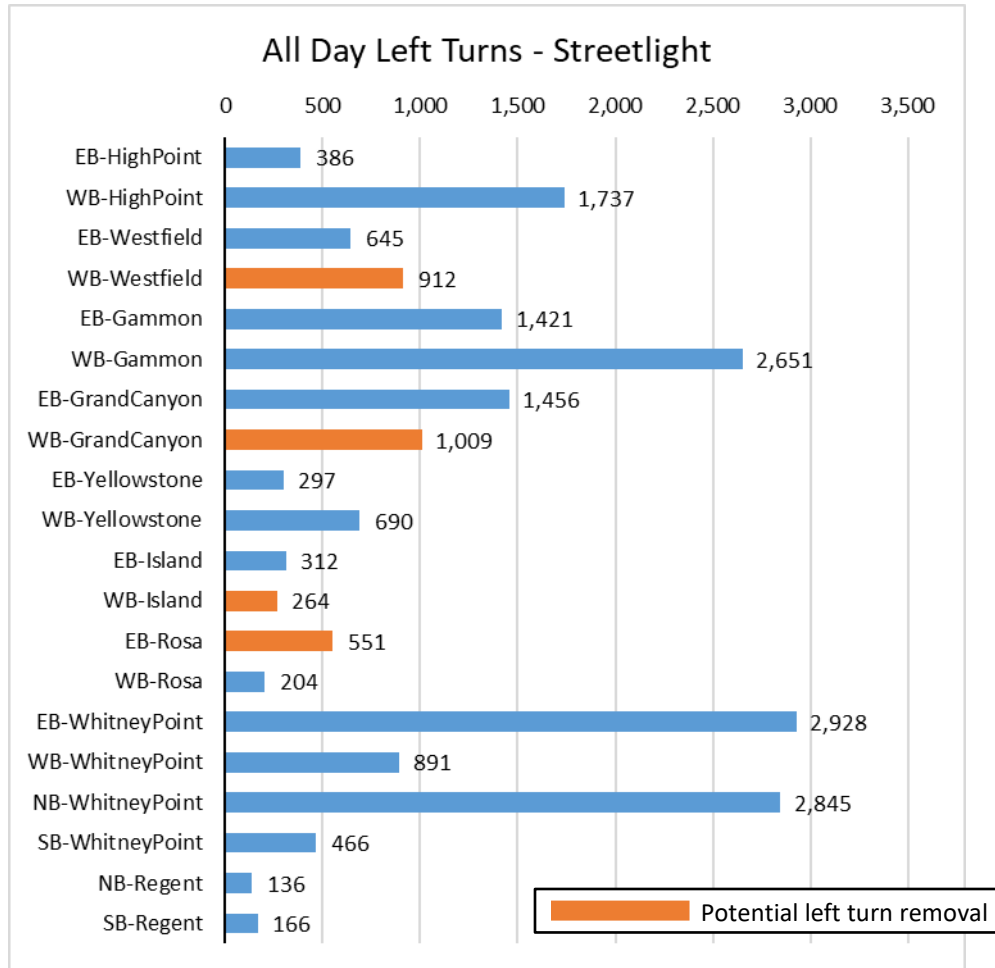


**2. Left Turn Volumes**

Turning movement counts are not readily available at these intersections because of the ongoing Coronavirus pandemic, which is suppressing travel demand and traffic volumes, and no recent counts, exist. However, the Madison Area MPO has purchased traffic flow estimate data from StreetLight. StreetLight uses smartphones as sensors to measure vehicles, bikes,

and pedestrians across North America. The advantage of using StreetLight is that we can ascertain turning movement volumes prior to the Covid 19 changes in travel patterns.

Traffic volume data was gathered for all weekdays in 2019 with the exception of major holidays. The following graphic illustrates the daily left turn volumes, with the orange bars highlighting the left turns that could be affected by a BRT station.



### 3. Intersection Specific Factors

Each intersection has unique factors that may affect whether or not a left turn can be removed.

- **Rosa Road** – The resolution passed by the Transportation Policy and Planning Board and Common Council in January 2021 has directed staff to maintain all left turns at this intersection. Reasons for this direction include maintaining one of CUNA’s parking lots from Rosa Road. Additionally, Garner Park has a parking lot accessed from Rosa Road. Additionally, the Fair Crest neighborhood, along with Stephens Elementary School is located on Rosa Road north of Mineral Point Road.
- **Island Drive** – The resolution passed by the Transportation Policy and Planning Board and Common Council in January 2021 has directed staff to maintain all left turns at this intersection. While having a relatively modest volume, left turns were preserved to not impact access to Oakwood Village, a continuing care community for adults 55 years and older. The facility has a second entrance just west of Island Drive, but it is unsignalized.
- **Grand Canyon Drive** – The WB left turn has the highest daily volume (1009 movements) of the four left turn lanes being considered for BRT stations. If removed, this WB left would primarily impact businesses south of Mineral Point

Road on Grand Canyon. Access to these businesses from the east could be made by turning left at Yellowstone, or by using a new U-turn just west of Grand Canyon. However, this may be a challenge for people who may not visit this area often. Alternatively, the EB left turn could be removed. This left turn removal would primarily impact residents living north of Mineral Point Road. The EB left turn movement has higher volumes than WB. EB vehicles wishing to turn left could use Yellowstone, or potentially a new U-turn added east of Grand Canyon.

- **Westfield Road** – The WB left turn has the second highest daily volume (912 movements) of the four left turn lanes being considered for BRT stations. If removed, the WB left would primarily impact businesses south and west of the intersection such as Metcalfe’s Market and several large retail stores, as well as businesses located on the west side of West Towne Mall. People accessing these areas could turn at either the previous or next intersection to access these stores, yet those intersections are unsignalized. Alternatively, they could turn left at Gammon and circulate through West Towne Mall. Another factor affecting the future is the potential expansion of the street grid in the West Towne Mall area. It may be possible and desirable in the future to extend Westfield Road south of Mineral Point, connecting with an extended Odana Road. If this were realized, the WB left turn grows in importance.

#### 4. Recommendation

Transportation staff recommend maintaining all left turns along the Mineral Point and Whitney Way corridor. The reasons for this include:

- Of the seven stations between Regent and High Point, five will maintain all left turns by policy, only two could potentially use the full median width, providing a relatively small benefit.
- The two left turns that could potentially be removed to use the full median width for a station have the first and second highest estimated volumes of left turning traffic of the BRT station intersections on Mineral Point Road. The TPPB felt that the importance of the Island and Rosa, reflected in the left turn volume, merited the preservation of these left turns. Grand Canyon and Westfield have even greater left turn volumes, suggesting similar importance.
- Eliminating the westbound left turn at Westfield Road could limit future options to create north-south collector street extension of Westfield Road towards Odana Road.

With this recommendation, the staff team acknowledges the following characteristics of stations on Mineral Point Road.

- Stations and median islands will be about 12 feet wide, while narrower, should be sufficient for the anticipated boarding volumes.
- BRT buses in one direction will maneuver to the left and back to the right through the left turn bays. BRT buses will to proceed when traffic in their direction during a signal phase that restricts left turns.
- All left turns at station intersections will be protected only (red, yellow, and green left turn arrows).