North Potomac Yard Small Area Plan Update
High-Level Transportation Summary

A multimodal transportation study is being prepared as part of the North Potomac Yard Small Area Plan Update. The purpose of the study is to evaluate the traffic impacts associated with the updated plan and to inform the transportation recommendations of the Small Area Plan. Additionally, the purpose of the study is to compare the transportation impacts of the updated plan with the previous approval of NPY to determine if additional transportation mitigations are required.

Process

Vehicular, pedestrian, and bicycle were collected at study area intersections. This data was used to establish the existing traffic operations of study area streets. Future traffic conditions were forecasted for two scenarios: (1) under the previous (2010) approval of North Potomac Yard (the "Old Plan") and (2) under the proposed updates to North Potomac Yard (the "New Plan"). Both scenarios included an annual traffic growth rate of 1 percent per year up to a 10 percent maximum increase, traffic generated by approved and unbuilt developments in the area, and minor rerouting of traffic due to changes in the transportation network. Both scenarios also assume the same improvements to the transportation network that have been committed to by the City or by others.

The Old Plan and the New Plan both consider the same square footage of total development. The key differences between the two plans are that the New Plan contains minor changes in the mix of land uses and more specific information about the types and locations of land uses within the North Potomac Yard development. The New Plan also considers and adjustment to the roadway configuration through the site compared to the Old Plan, with Potomac Avenue aligned through the site instead of along the perimeter of the site. These minor differences in planned land use, combined with mode split assumptions, result in a minor increase in vehicle trips generated by the New Plan.

The Old Plan generates over 2,200 vehicle trips during the AM peak hour and over 3,500 vehicle trips during the PM peak hour. The New Plan generates over 2,600 vehicle trips during the AM peak hour and over 3,700 vehicle trips during the PM peak hour. This is based on an assumed mode split of 60 percent non-auto users for site trips.

Analysis of future traffic conditions were conducted for the years 2021 and 2040.

The year 2021 is when Phase I development is forecasted to be built and occupied. Under 2021 conditions, Potomac Avenue is assumed to operate during the AM and PM commuter peak periods with one travel lane and one parking lane in the off-peak direction and two travel lanes in the peak direction of travel; there are no northbound or southbound left turn lanes under 2021 conditions.

2040 represents a horizon year in which it is reasonable to assume the full development of the New Plan will be built and occupied. Under 2040 Conditions, the Metroway's dedicated lanes are extended to Evans Lane and Potomac Avenue. Also under 2040 conditions, Potomac Avenue is assumed to achieve its ultimate cross-section with dedicated Metroway lanes, two travel lanes in each direction, and northbound/southbound turn lanes at intersections.

Analysis and Results

The scenarios were evaluated using VISSIM microsimulation software. This software simulates the individual behaviors of vehicles and the interactions between vehicles, pedestrians, transit, and bicyclists.

The analysis results indicate that the traffic operations of the New Plan are largely consistent with the traffic operations of the Old Plan. The minor increases in traffic, when distributed across study area streets, results in no significant differences in traffic operations at most intersections. The results also indicate that the 2021 configuration of Potomac Avenue, including the single lane in the off-peak direction, will operate acceptably. Similarly, delays behind left turning vehicles, while present, are not significant enough to cause major spillback to other intersections. This is especially true when turning movements are distributed among the many site entrances.

Certain transportation improvements were investigated to facilitate the desired future operation of US Route 1 and Potomac Avenue. In 2021, this includes signal timing updates and signalization of intersections along Potomac Avenue at the site entrances. In 2040, this includes signal timing updates, signalization of an additional intersection to facilitate the Metroway running through the site, a pedestrian high intensity activated crosswalk signal along Potomac Avenue, lengthening of select left-turn lanes along US Route 1, and restriping the intersection of US Route 1 and Potomac Avenue to allow westbound left turns out of three lanes instead of two lanes.

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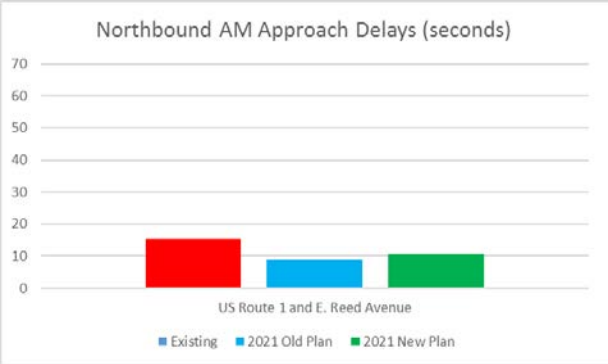
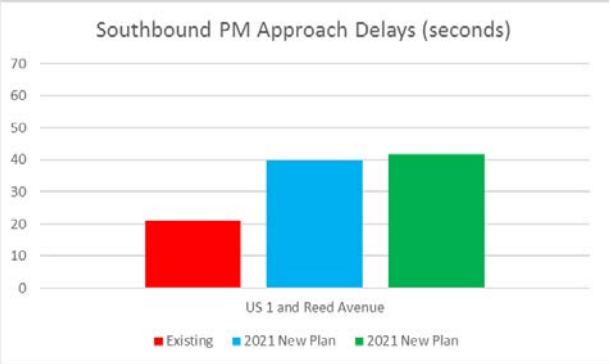
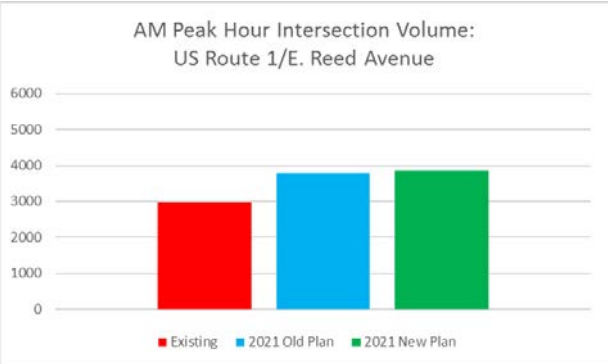
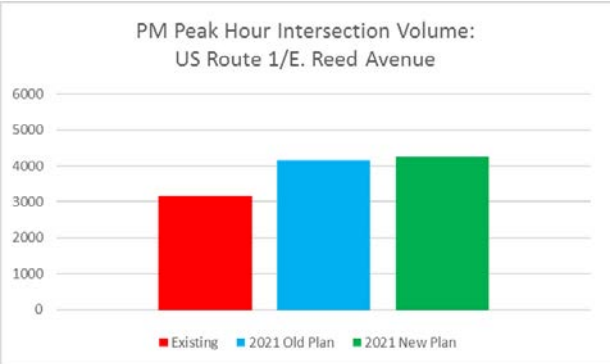
Transportation Analysis Snapshot: Delay and Traffic Volumes at Key Intersections

US Route 1 at E. Reed Avenue (2021)









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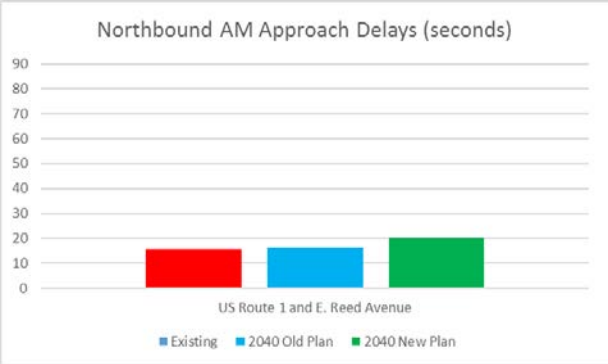

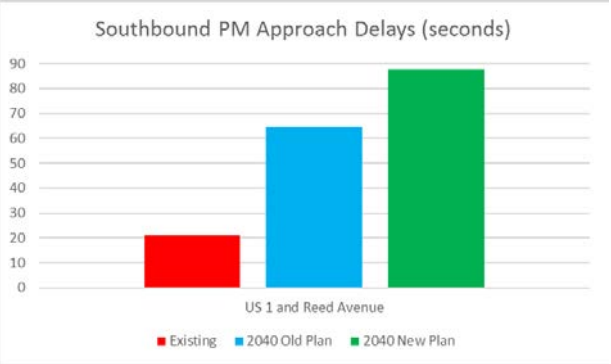

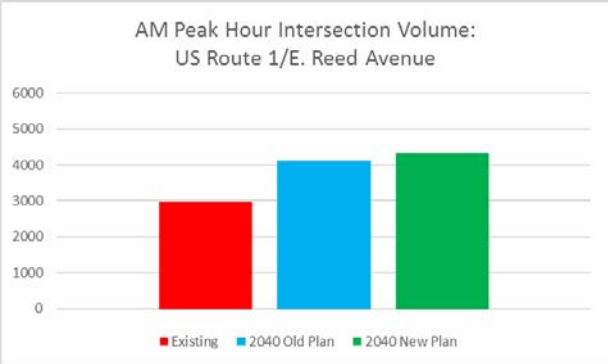

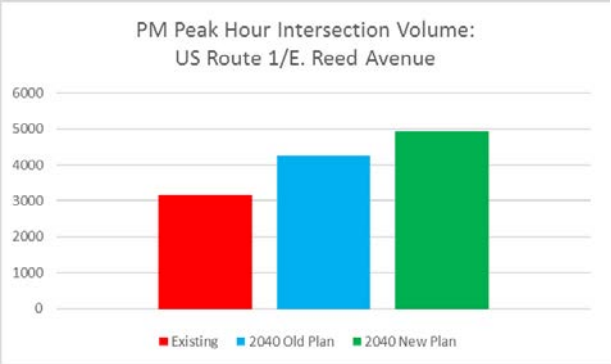

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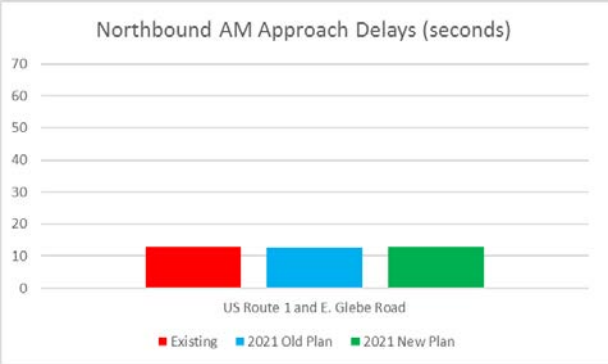

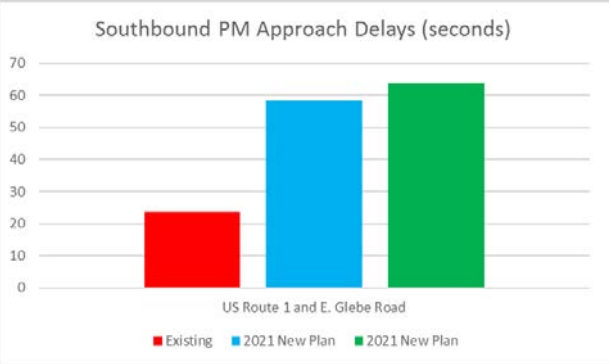

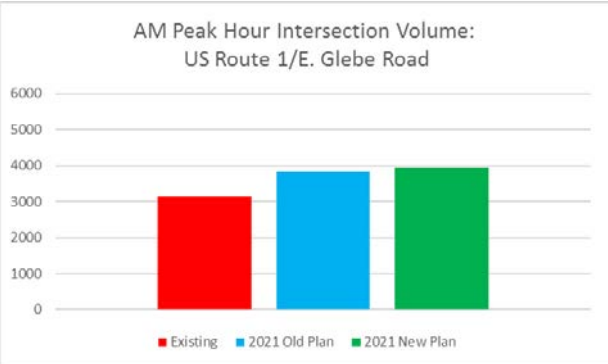

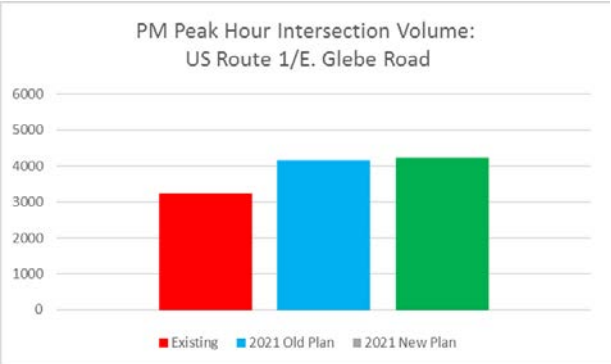

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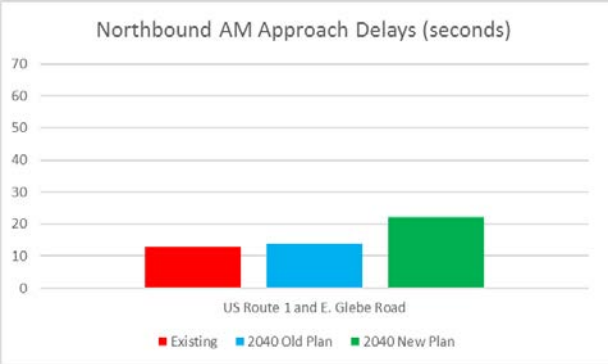

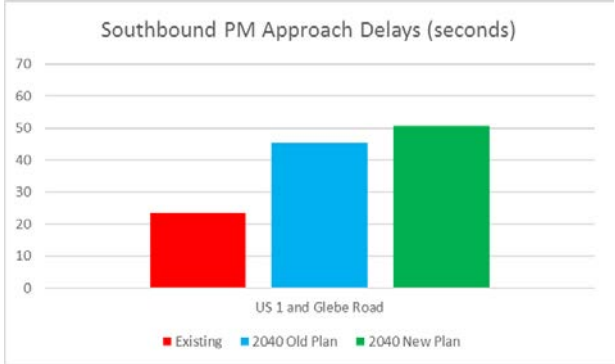

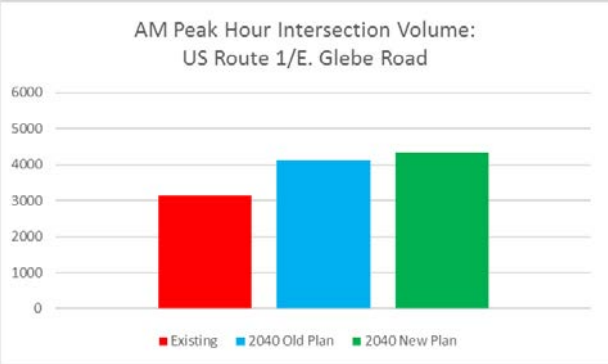

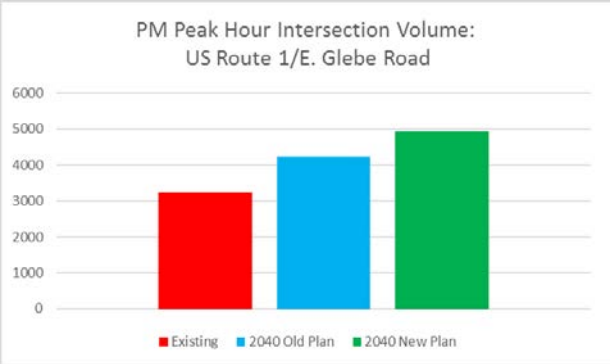

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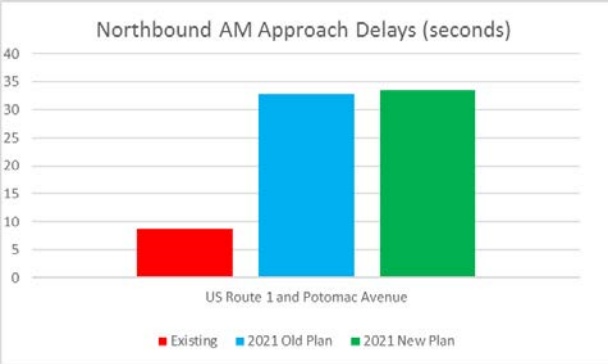

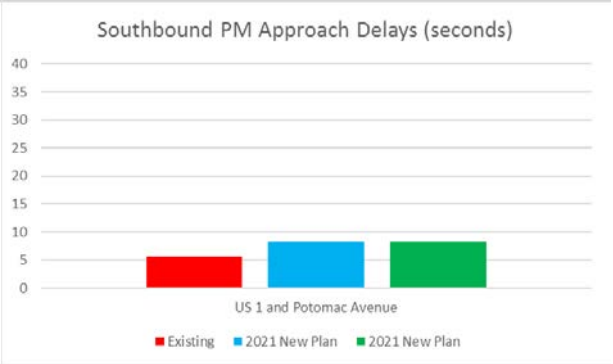

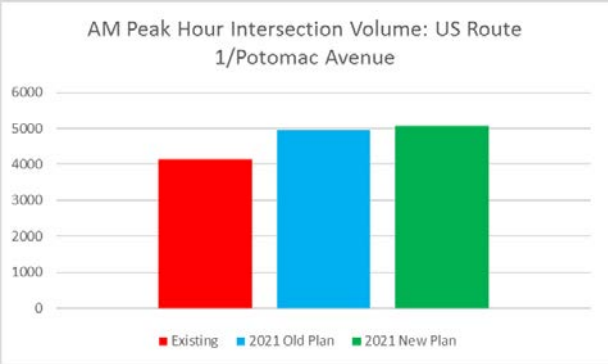

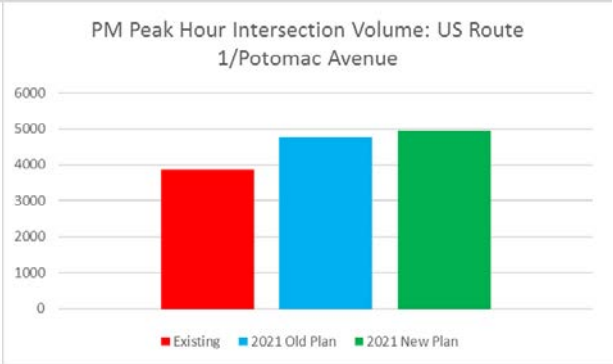

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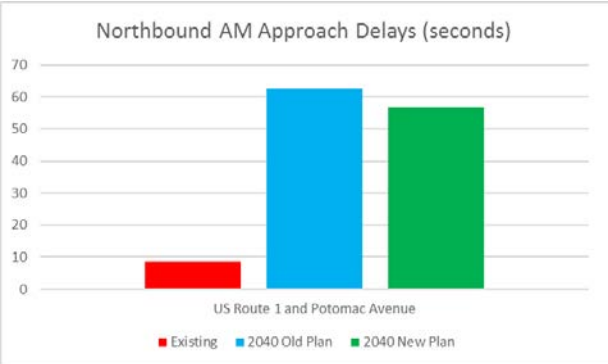

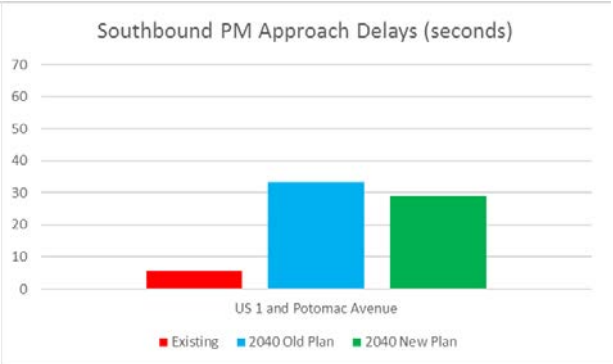

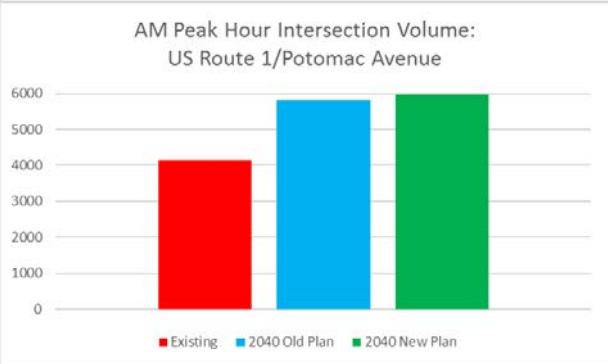

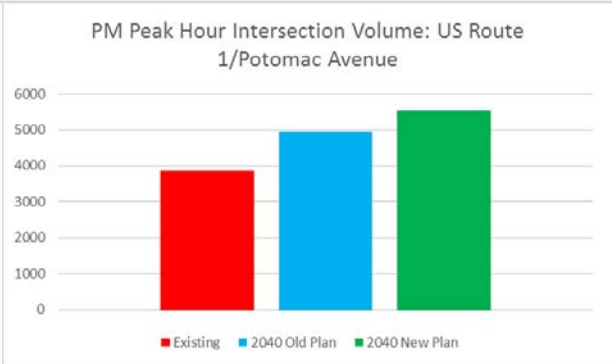

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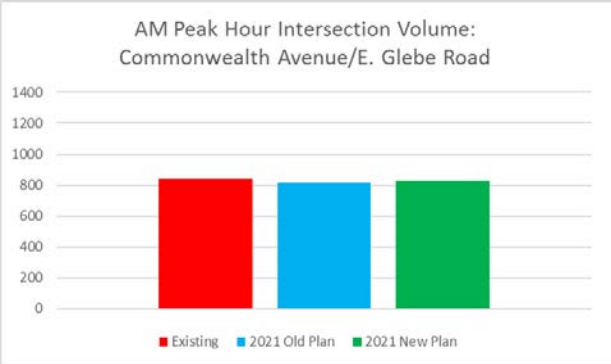
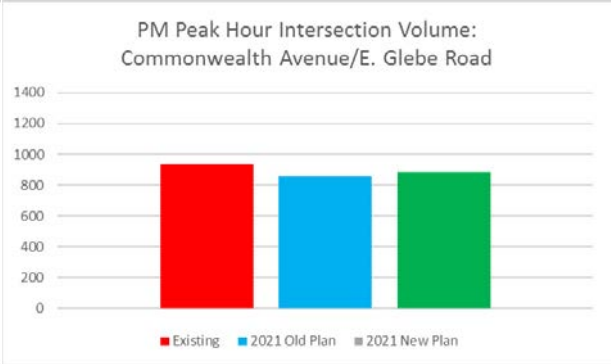
Commonwealth Avenue at E. Glebe Road (2021)*





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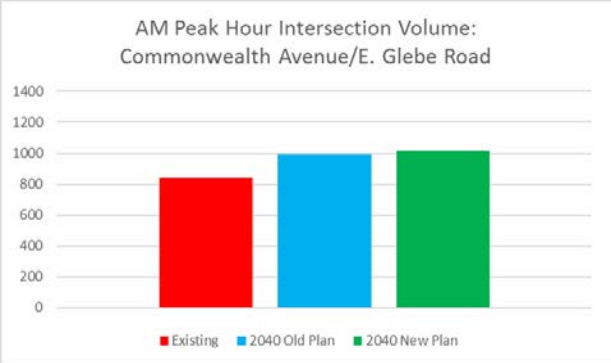

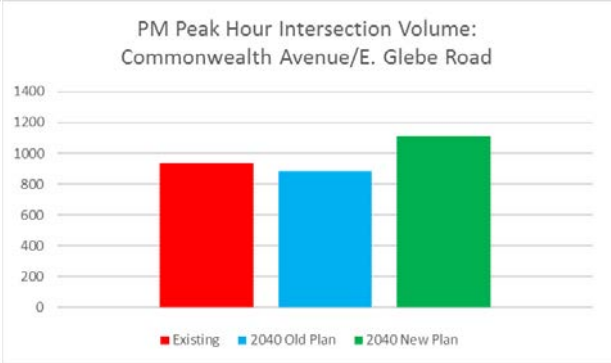

*negligible impacts to intersection delays

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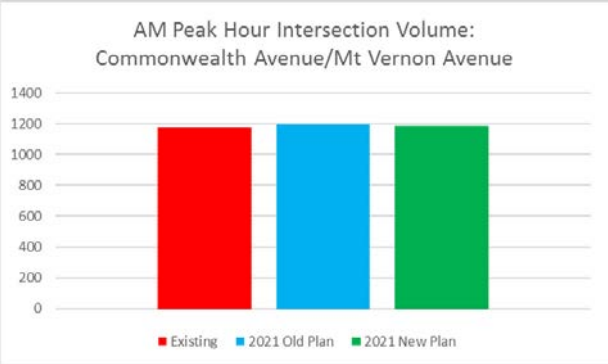

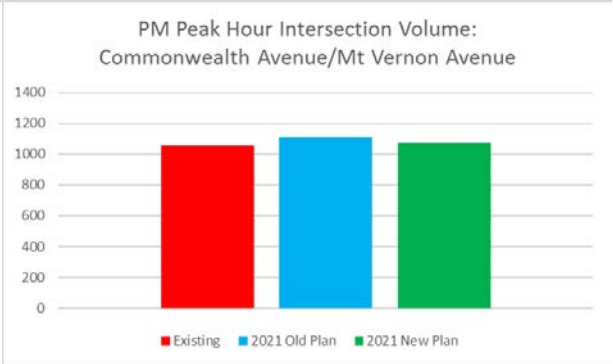

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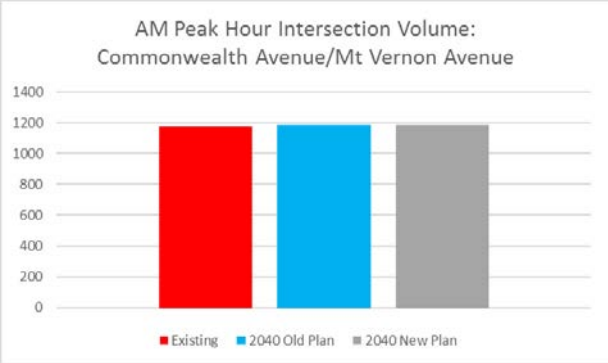

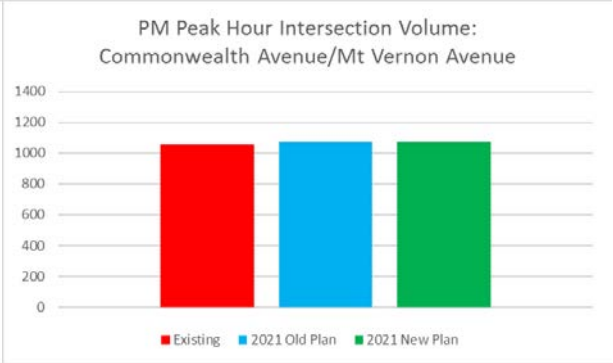

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