

DKS PERSPECTIVE

Welcome to the first edition of The DKS Perspective. We are excited to share with you, our colleagues, clients, and friends, current and past DKS projects from our perspective. We work on interesting but defining projects in our communities and this is our opportunity to highlight some of the interesting aspects of this important work.

The Division Transit and Development Project

From the perspective of the following DKS employee-owners:



PETER COFFEY



ROBIN TLEHEMA



RANDY JOHNSON

In 2015, DKS Associates began work with Metro on what was then known as the Powell/Division Transit and Development Project, providing transportation planning and traffic engineering services for a high capacity transit service connecting Mount Hood Community College to Portland State University via the Tilikum Crossing. DKS and the consultant team worked with TriMet, ODOT, Multnomah County, and the cities of Portland and Gresham to identify options for improving transit service and reliability.

DKS led the development of a traffic analysis methods and assumptions document. Working with Metro staff, a unique travel demand modeling approach was developed using Dynamic Traffic Assignment (DTA) models. Traffic analysis included the development of two Vissim micro-simulation models and HCM (Highway Capacity Analysis) analysis at key selected intersections. Using future 2035 volumes from the DTA models, a variety of Bus Rapid Transit (BRT) alternatives were evaluated at the key study area intersections.

The project started final design in 2018 and is now led by TriMet. Known today as the Division Transit Project, this phase encompasses the stations, adjacent crossings, and modifications at major intersections along the route to improve travel with safer, easier, faster, and more reliable bus service along the 15-mile corridor. Prior to this project starting, there were numerous fatalities along the corridor putting Division Street on the list of “High-Crash Corridors” in Portland. Safety considerations were put above transit priorities, including design elements such as improved pedestrian crossings at stations, to make Division Street safer for all users.

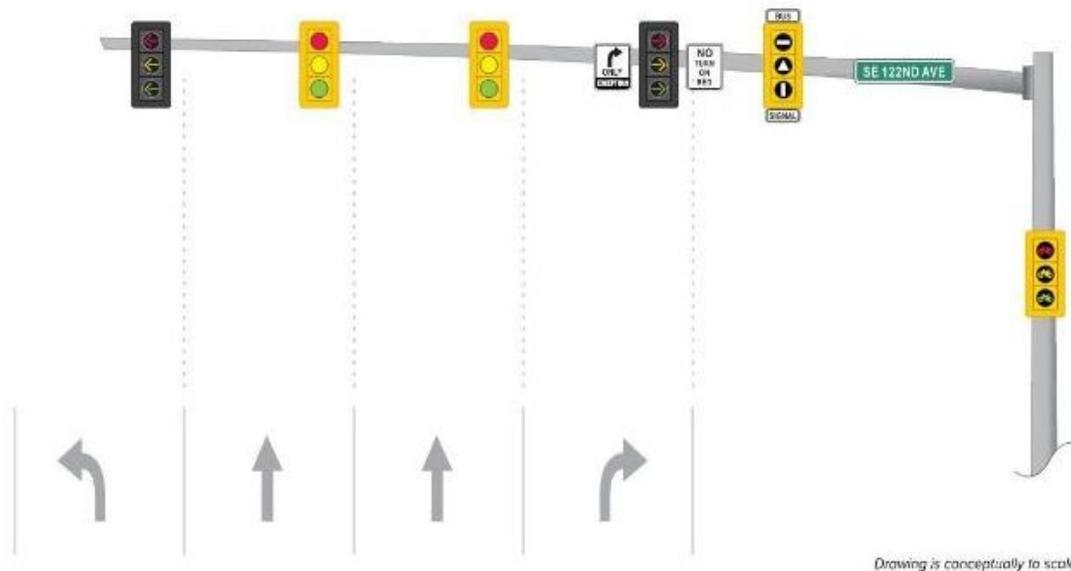
This is a very personal project for Robin Tlehhema, DKS Lead Traffic Signal Designer for the project, as her neighborhood is along the corridor and directly affects her family and their transportation experience. Being a daily rider also allows her to provide real-time project updates to the team.

“The entire team and stakeholders are invested in the success of this project and focused on the best solution for the corridor and the end-users,” said Tlehhema. “Since the main priority of the project is a faster, safer, more reliable ride and this bus line is the highest ridership line in TriMet’s system, we had to evaluate and prioritize improvements around the highest used stops. What’s unique and new for TriMet is the stop spacing. The City of Portland traditionally has a stop every two blocks. The result of this project is a stop about every five blocks instead of every two,” she said.

So just how do you go from stopping every two blocks to every five blocks? The project will improve bus service by providing boarding at all doors resulting in briefer stops, near-level boarding for passengers with disabilities that can “dock” and secure themselves, serving stations where rider demand is greatest to minimize travel times while providing vital transit connections, transit signal priority where traffic signals prioritize bus travel, and tap and go ride fare for quicker boarding. These enhancements will reduce travel time up to 20% with buses running every 12 minutes and more often during peak hours.

Tlehhema went on to explain, "This project sets the stage for future BRT service in the region which is why the stakeholders and teaming partners are so invested. The technology we are introducing on this project will be used to enhance future corridors."

Sample Traffic Signal Heads Layout Design by DKS



DKS President, Peter Coffey, who served as the project's overall Traffic Engineering Task Manager, noted the significant challenges throughout the project. "We had to maintain vehicle travel lanes while accommodating a high capacity BRT service. We were limited in our ability to add new lanes and had to balance the different modes of transportation from transit performance to pedestrian access to bicycle access while maintaining a level of vehicle mobility and safety because there wasn't a dedicated right-of-way."

Coffey went on to explain, "Our design had to be flexible and reactive to the numerous other construction projects along this corridor. Every part of our design from the signal design, the ADA ramps, where we placed the pushbuttons, and the multi-modal access demonstrated our commitment to equity and that our design is for everyone not just the majority."

Randy Johnson, DKS Traffic Engineering Task Lead commented, "The team, including the stakeholders, were open to innovative ideas, some of the first of a kind in this region including the application of unique and dynamic signal timing, and the up and over bicycle station design. The team worked together to develop solutions that fit within the constraints of right-of-way, utilities, and budget. This non-conventional design is now being considered elsewhere."

DKS applied multiple creative solutions to meet the project's goals. Solutions included the addition of some business access transit lanes in the peak eastbound direction, a protected bike lane, and bicycle and pedestrian signal phasing. Signal timing was adjusted to accommodate different modes of transportation arrival times while reliance on dynamic signal timing was necessary to provide as much of a priority as possible for transit. Even with all of their BRT work from Seattle to Eugene, DKS relied on new technologies, including providing custom applications, to advance traffic controls.

Johnson went on to say, "This is truly a multimodal project. We had to balance Portland's modal hierarchy of pedestrians, bikes, transit, and vehicles with the safety corridor and the concerns of how to provide safety for pedestrians and bicycles that were in direct conflict with vehicle mobility. If we sacrificed vehicle mobility, we were sacrificing transit performance. Trying to find the balance between the modes and provide the best possible service for the corridor was a challenge."

TriMet's commitment to building an "equity line" is evident. Collaboration between the entire project team and stakeholders, two groups that are typically siloed, resulted in innovative solutions and a commitment to a design that benefits everyone.

This project is expected to begin service in 2022.