



SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: July 1, 2021.** Please include this submission form with the electronic entry. If you do not receive an email confirming receipt of your entry within 3 days of submission, please contact [Gage Harter](#).

PROGRAM INFORMATION

County: Prince William County

Program Title: Prince William County Department of Transportation – Alternative Delivery Branch

Program Category: Transportation

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SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: Christopher Martino

Title: County Executive

Signature: 

2021 VACo Achievement Award Entry
Prince William County Department of Transportation – Alternative Delivery Branch

Executive Summary/Overview

The Prince William County Department of Transportation has fostered an innovative culture that seeks alternative solutions to the unique transportation challenges of the County. Prince William County has experienced the massive growth of the Northern Virginia and Metropolitan Washington D.C. regions and is the second most populous and fourth fastest growing county in the Commonwealth, but as the southernmost jurisdiction, the county does not have access to the mass transit solutions that the core jurisdictions benefit from. In order to achieve the County's goal of providing "an accessible, comprehensive, multimodal network of transportation infrastructure that supports local and regional mobility", Prince William County Department of Transportation has successfully implemented a creative approach towards providing mobility solutions through the Alternative Delivery Branch.

The Prince William County Department of Transportation Alternative Delivery Branch delivers innovative, multi-modal mega-projects using alternative methods that provide significant cost and time savings to the County. Using alternative delivery processes, this small team of just three highly trained and knowledge diversified individuals is responsible for nearly one-fourth of the County's active major transportation projects. These projects total nearly \$350 million dollars, are over 75% percent grant funded and are delivered on average 40 percent faster using alternative delivery than the traditional Design-Bid-Build method. The Alternative Delivery Branch has been instrumental in growing Prince William County's Transportation five-year capital improvement program from \$300 million to over \$1 billion in just two years.

Background

Prince William County is located in Northern Virginia less than thirty miles south of Washington D.C. This region is only slightly more than 1,000 square miles but accounts for 37% of the Commonwealth's population, with nearly 3.1 million people living, working and commuting in Northern Virginia. According to the 2018 Global Traffic Scorecard compiled by INRIX, Washington D.C., Maryland and Virginia (DMV) has the second worst traffic congestion in the nation and Northern Virginia is home to six of the 10 worst bottlenecks in this urbanized area. Prince William County as a jurisdiction on the outskirts of this region has faced unique transportation challenges. The County has experienced the rapid growth and is now the second most populous jurisdiction in the Commonwealth and fourth fastest growing, but it does not have access to the mass transit solutions that jurisdictions in the Metro D.C. core benefit from. This challenge has required innovative approaches to fulfilling the County's Mobility Strategic Plan goal to provide "an accessible, comprehensive, multimodal network of transportation infrastructure that supports local and regional mobility."

Prince William County has made a significant shift from a traditional road centric focus that sought to "pave the way" out of our County's transportation challenges, to a focus on innovative, multimodal transportation solutions. With this focus, the Prince William County Department of Transportation delivers projects that not only meet current and future needs for congestion mitigation and safety improvements, but support local and regional transit and land use goals with creative, cost-efficient, minimal impact approaches to design and build. This shift has necessitated a profound change in the operations and culture of the Department of Transportation. Staff is cross-trained to better understand and collaborate among the key functions of the Planning and Programming and Capital Divisions of the Department, and to bring a multi-perspective approach to each function for continual innovation. The Alternative Delivery Branch is a key program that grew out of the innovative culture of the Department.

Prince William County Department of Transportation is one of the few agencies in the Commonwealth that consistently delivers mobility projects using alternative delivery methods. Use of alternative delivery methods has enabled the comparatively small Department of less than 60 employees, to grow the County's Transportation

Capital Improvement Plan by 200%. The over billion dollar five year plan is now larger than several of Virginia Department of Transportation's Districts comprised of multiple jurisdictions.

Alternative Delivery

The Prince William County Department of Transportation Alternative Delivery Branch was established in 2019 and is responsible for the design, procurement and construction of select projects using alternative delivery methods. These alternative delivery methods include the Design-Build Method and the Public-Private Transportation Act process. The use of these methods and the "cradle to grave" approach to the delivery of the project using a single contract has produced innovative designs, improved cost efficiencies, reduced project timeline, and enhanced collaboration of stakeholders to improve both the process and final product.

Traditionally, transportation projects are implemented using a design-bid-build contracting method where each phase is separate and fully completed prior to moving into the next phase. While appropriate for certain projects, this method limits opportunities for collaboration between those designing the project and the construction team. As projects enter into procurement and construction, any changes to the previously completed design can result in significant cost increases and project delays. In the Design-Build Method, procurement takes place prior to, or concurrent with, design allowing for collaboration and flexibility. As a result, the Design-Build method has been found to be highly effective at controlling costs and project schedule.

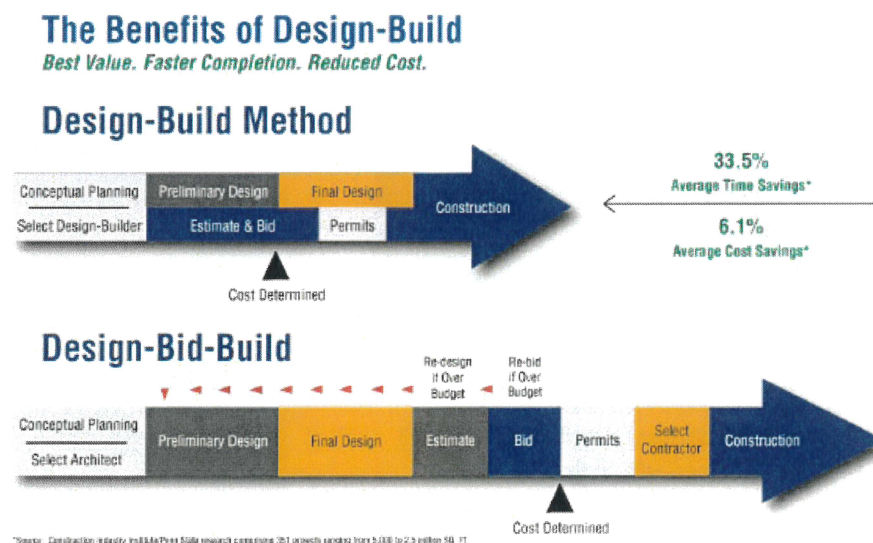



Figure 1. Traditional and Design-Build Methods


The Alternative Delivery Branch also utilizes the Public-Private Transportation Act (PPTA) process, which was established in 1995 to encourage private investment in transportation. An outcome of this Act has been the \$3.7 billion Transform 66 Outside the Beltway project constructing Express Lanes, interchange improvements, park and ride lots, transit routes and bike and pedestrian facilities to support mobility on the I-66 Corridor. The Alternative Delivery Branch has been successful in coordinating with this project and as part of this effort, is responsible for delivering the Balls Ford Road/Route 234 Interchange described in the following section. At the County level, the Alternative Delivery Branch uses PPTA to accept unsolicited proposals from the private sector. The use of unsolicited bids allows the Branch to deliver projects quicker by encouraging the private sector to develop project proposals.

A meta-analysis performed by Arizona State University found that on average alternative delivery method projects were delivered 35 percent faster than standard Design-Bid-Build projects. In Prince William County the standard project timeline for a major transportation project is two years for design, one year for right-of-way (ROW) acquisition and two years for construction. Using alternative delivery, projects can be completed within 2-3 years from the time a contract is finalized.




Concession Fee Projects – NVTA Request
Updated January 5, 2018

Route 234 Bypass at Balls Ford Road Interchange



- **Project Description:**
 - Provide a new interchange at Route 234 Bypass (Prince William Parkway) and relocated Route 621 (Balls Ford Road), which includes a new bridge over the existing Norfolk Southern Railroad.
 - Relocates Balls Ford Road to the south on new alignment as a new four-lane facility with raised median between Devlin Road and Doane Drive.
- **Project Benefits:**
 - Improves access to the new park and ride facility and Express Lanes ramps at Balls Ford Road and Century Park Drive, and the existing park and ride facility on Cushing Road.
 - Significantly reduces peak period delay and increases peak period person throughput entering and exiting I-66.

- **Location:** Prince William County
- **Anticipated Completion:** July, 2023
- **Requested Funds:** \$145.0M



TRANSFORM 66

Figure 2. Transform 66 Funded Project

The Alternative Delivery Branch oversees all aspects of the project from start to finish and is active in the planning, design and implementation of the project. Projects selected for this comprehensive approach are chosen based on the cost/scope, risk and the need for innovative design. As noted, alternative delivery methods are effective at reducing project costs and timelines so the Alternative Delivery Branch focuses on large, complex transportation projects. Currently, the lowest cost project managed by the Alternative Delivery Branch exceeds \$53 million and the highest cost project is the Prince William Parkway Interchange at Realigned Balls Ford Road is over \$100 million.

The Prince William County Department of Transportation has increasingly turned to innovative design to provide cost-efficient, multi-modal solutions that support transportation, land use and economic development goals. These innovative solutions are often the result of the County's partnership with the Virginia Department of Transportation through the STARS (Strategically Targeted Affordable Roadway Solutions) program, which have produced alternative intersection improvement concepts along Route 234. The Alternative Delivery Branch is highly effective at implementing these innovative concepts, working with a wide range of public and private sector entities in often concurrent design and construction phases.

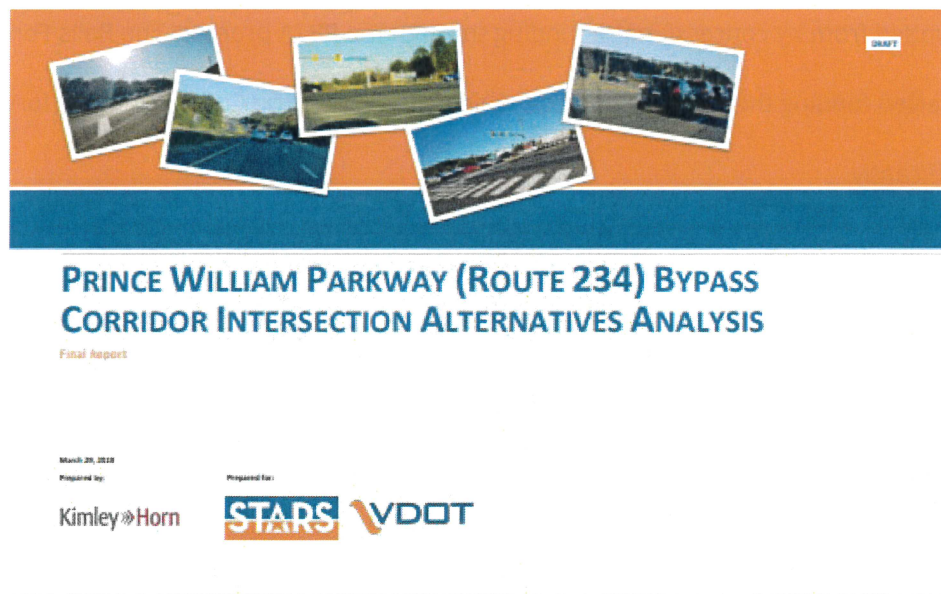


Figure 3. Route 234 Corridor STARS Study

Prince William County Alternative Delivery Projects

The Alternative Delivery Branch has five active projects totaling \$346.6million. These four projects are only 24% of Prince William County's active major transportation projects, but account for 45 percent of the total cost of all 21 projects. The active projects under the Alternative Delivery Branch are the Prince William Parkway Interchange at Realigned Balls Ford Road Balls Ford Road/Route 234 Interchange, Balls Ford Road Widening, Route 234-Brentsville Road Interchange, the Neabsco-Potomac Commuter Parking Garage, and the future Minnieville Road/Prince William Parkway Interchange.

Prince William Parkway Interchange at Realigned Balls Ford Road

The project constructs a diverging diamond interchange and relocates alignment of Balls Ford Road to the south of the intersection. The diverging diamond intersection design moves high volumes of traffic with reduced conflict points to improve safety and throughput. This project will significantly reduce peak period delay of vehicles accessing Route 234 and I-66, and improve access to park and ride facilities serving the I-66 corridor. The project was recommended by the Northern Virginia Transportation Authority (NVTa) to the Commonwealth Transportation Board (CTB) and received concessionaire funding from the PPTA Transform 66 Outside the Beltway project. The project is fully funded from by concessionaire funding through the PPTA process. The Balls Ford Road widening process also received funding through this process, which has allowed the County to move forward the schedule for this project significantly.

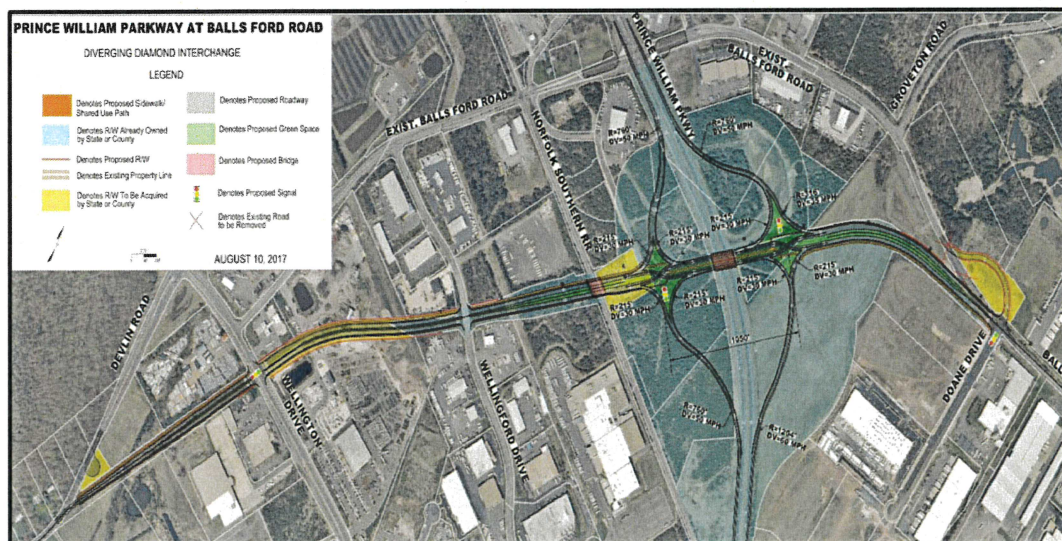


Figure 4. Prince William Parkway Interchange at Realigned Balls Ford Road



Figure 5. Balls Ford Road Widening

Route 234-Brentsville Road Interchange

The Brensville Road Interchange at Prince William Parkway was initially envisioned as a grade-separated “Spork” concept design. This alternative concept design is a product of the STARS Prince William Parkway (Route 234) Corridor Intersection Alternatives Analysis and is a Design-Build project. This concept is referred to as a “Spork” because similar to the combination of the spoon and fork, it is a unique combination of at-grade and grade-separated alternatives. The “Spork” concept was further studied and modified by the Alternative Delivery Branch to eliminate two, closely spaced, traffic signals.

The proposed concept will include the construction of two bridge(s) over Route 234, replacing the signalized intersections of Dumfries Road (Route 234 Bus) and Prince William Parkway (Route 294) /Brentsville Road. The new bridges will provide free flow movements to southbound Prince William Parkway (Route 234) to eastbound Prince William Parkway (Route 294), as well as westbound Prince William Parkway (Route 294) to southbound Dumfries Road (Route 234). A continuous green-T intersection will be constructed at Prince William Parkway (Route 294) and Bradley Cemetery Way for further free flow movements with an overall 40% green time increase on Prince William Parkway.

Brentsville Road will be rerouted to align with Dumfries Road (Route 234 Bus) and the new intersection with the ramp from southbound Route 234 will operate as another continuous Green-T intersection with northbound Brentsville traffic free-flowing. The intersection of Bradley Cemetery and Dumfries Road (Route 234 Bus) will be signalized and will take ramp traffic to and from northbound Prince William Parkway (Route 234) The Route 294 to Route 234 existing Shared Use Path (SUP) [for runners, walkers, and bicyclists] will be rerouted thru the interchange and tie back to the existing SUP on the south side of Route 234.

The project is fully funded, with 90 percent of the funding received from regional grant revenue. The Design-Build contract for the project was awarded in the Fall of 2020 and the project is scheduled to be completed Fall 2023, for a project schedule of just three years for this large capital project.

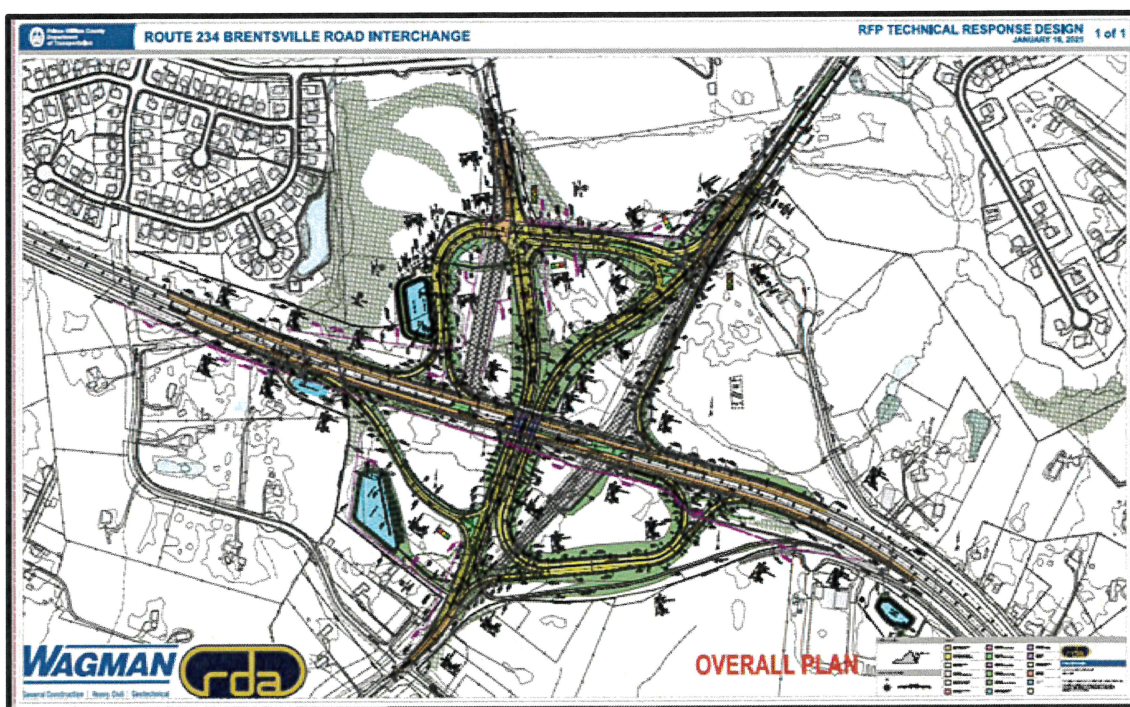


Figure 6. Route 234-Brentsville Road Interchange

Neabsco- Potomac Commuter Parking Garage

This project will provide the first commuter parking garage structure in Prince William County. The seven floors, 1,400 parking space facility will be twice as large as the current largest commuter parking lot in the County and will accommodate transit services. This includes lanes for OmniRide bus services, "kiss and ride", and slug lines. This project is located in a Metropolitan Washington Council of Governments (MWCOC) Regional Activity Center and

exemplifies the County's shift in focus to providing multi-modal transit solutions to support increased density. This project will serve as a multi-modal hub to promote transit use and decrease traffic congestion. The project is fully funded, with 86.5 percent of funding grant funded. Design of the project began in April 2019 and the project is on track for completion in Summer 2023. The delivery of the commuter garage as a Design-Build project has reduced the project schedule by two years over the County's traditional project delivery schedule.

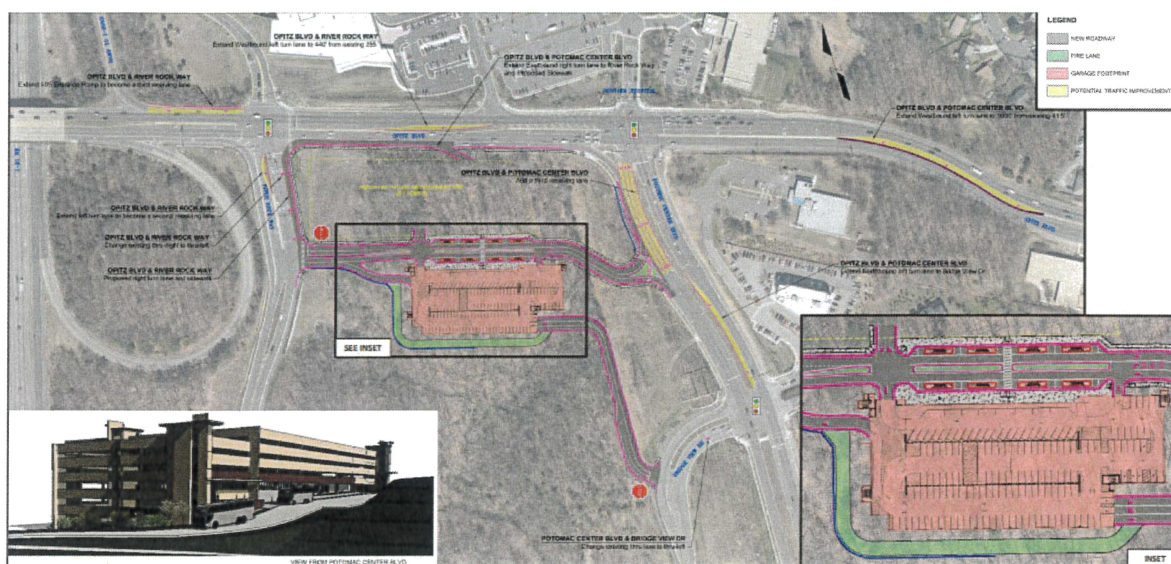


Figure 7. Neabsco-Potomac Commuter Parking Garage

Minnieville Road/Prince William Parkway Interchange

The Minnieville Road/Prince William Parkway Interchange is a new Alternative Delivery project that was adopted in Prince William's Fiscal Year 2022-2027 Capital Improvement Program. The County is working with VDOT and a local developer to deliver this project as part of a Public-Private partnership alternative delivery. The private sector has prepared an Interchange Justification Report and the County has committed local funding to the Preliminary Engineering. The total cost of the project is \$70 million, and the project has authorized for bond funding as part of the 2019 Mobility Bond Referendum. This project will reduce delay and congestion and improve access to major destinations, including Interstate 95. Using alternative delivery has reduced the cost to the County and allows the project to be implemented sooner.

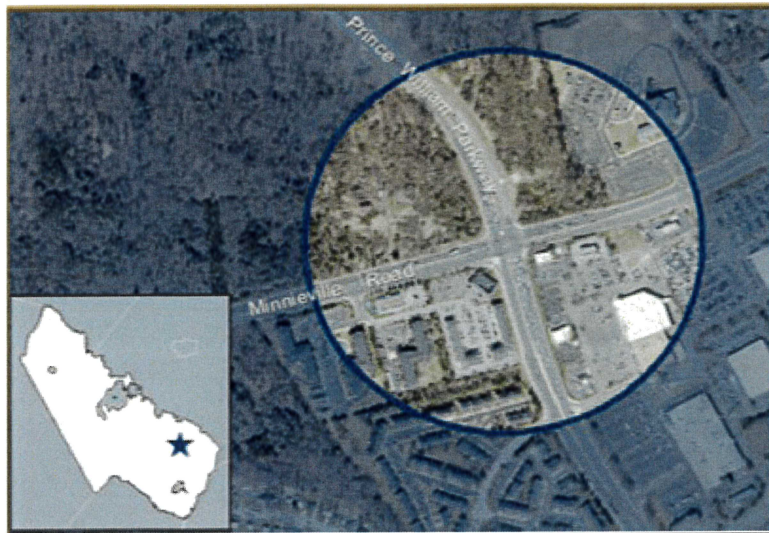
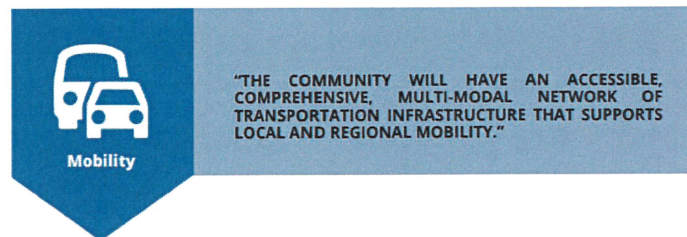


Figure 8. Minnieville Road/Prince William Parkway Interchange



Financing and Staffing

The Alternative Delivery Branch is a small team of just three highly trained, knowledge diversified members. The Alternative Delivery Branch manager and two Principal Engineers manage the select projects from start to finish and are involved in every stage, including planning, preliminary engineering, public engagement, procurement, design, and construction. The comprehensive, “cradle to grave” approach of the branch requires professionals with high-level, extensive knowledge and skill sets. As such, the positions in the Alternative Delivery Branch are among the higher level in the Department, with one position classified at the County’s D-61 level and two positions classified at a C-45 position. The annual mid-point salary cost for these three positions is \$456,000. However, the team has a combined nearly 100 years of engineering and design experience and team credentials include; Professional Civil Engineers (3), Design Build Institute of America Certified Professional (1), Project Management Professional (1), Certified Construction Manager (1), Structural Engineer (1) and Certified Building Official (1). This extensive and broad range of knowledge allows a small team to deliver the large, complex projects of the Branch.

Additionally, the benefits the Branch affords projects through their ability to deliver using alternative methods makes these projects highly competitive for grant funding. The innovative designs, cost efficiencies and reduced project timelines provide higher benefit for the cost and have enabled the Department to be very successful in attracting grant funding. Seventy six percent of the total costs of the five active projects managed by the Branch are grant funded (see funding breakdown in Table 1). In 2019, the Department cost recovered over \$3 million in Department staff costs from grant funding awarded. The grant funding received also covers nearly all the bid costs for the design-build of the projects.

Project	Total Cost	Grant Funding
Prince William Parkway Interchange at Realigned Balls Ford Road	\$105 M	\$105 M
Balls Ford Road Widening	\$73.5 M	\$66.2 M
Route 234-Brenstville Road Interchange	\$55 M	\$54.9 M
Neabsco-Potomac Commuter Parking Garage	\$43.1 M	\$37.3 M
Minnieville Rd/Prince William PkwY Interchange	\$70 M	\$0
Total	\$346.6 M	\$263.4 M

Table 1. Project Grant Funding

Results

The Alternative Delivery Branch may be small, but the impact is substantial. The three-person team oversees nearly one-fourth of all currently active major transportation projects administered by the Prince William County Department of Transportation. The value of these projects represents over 45 percent of the total value of all 21 projects in the FY 2022 Capital Improvement Program. Despite the large cost and scope of these projects, by using alternative delivery methods that allow the design and construction phases to run concurrently the time

between design and project completion averages only three years. This is a 40 percent reduction in from the standard project timeline of five years for major transportation projects completed using the traditional Design-Bid-Build method.

The cost savings of a reduced project timeline and the attraction of grant funding allows the County to move forward with projects faster and has been key to rapidly growing Prince William County's Transportation Capital Improvement Program. This has resulted in an over \$1 billion five-year capital improvement program that is providing much need transportation infrastructure to a County that experiences some of the highest congestion rates in the nation.

An additional benefit to the community has been the high level of public engagement in alternative delivery projects. Due to the innovative nature of these projects, the Alternative Delivery Branch is committed to keeping the public informed and engaged throughout the process. This commitment was put to the test during the COVID-19 pandemic where in person public information meetings were not possible. The Branch rose to the challenge and hosted a comprehensive virtual presentation that has been viewed over 1,800 times. This was the first virtual public information meeting conducted in the County and its success has led the team to develop a virtual presentation template that can be implemented for future projects throughout the County. The Branch's efforts are shaping not only how business is conducted in the Department, but in the County as a whole. The presentation and the responses to the comments and questions generated are available at

<https://www.pwcgov.org/government/dept/dot/Pages/Virtual-Presentations.aspx>.

The Prince William County Department of Transportation Alternative Delivery Branch grew out of the innovative culture of the Department and has yielded enormous benefits to the County and its resident. The innovative projects being delivered by the Branch provide multi-modal facilities that significantly improve local and regional mobility. The alternative delivery methods being used for these projects provide both direct cost and time saving to the County, as well as improve the County's competitiveness in securing grant funding. The Alternative Delivery Branch, though a relatively new program to the County, has been instrumentation in enabling Prince William County to further the Count's Mobility Strategic Plan and provide a transportation network that meets the needs of the community.