



PROJECT PIPELINE

Board Update

September 14th, 2021



Project Pipeline - Overview

Program Goals:

- Focus planning/project development on CTB VTrans priorities
- Streamline project planning and improve project readiness
- Improve and develop tools make use of powerful data and improve collaboration
- Solve more problems with limited transportation dollars

Project Pipeline builds on the success of VDOT's STARS program

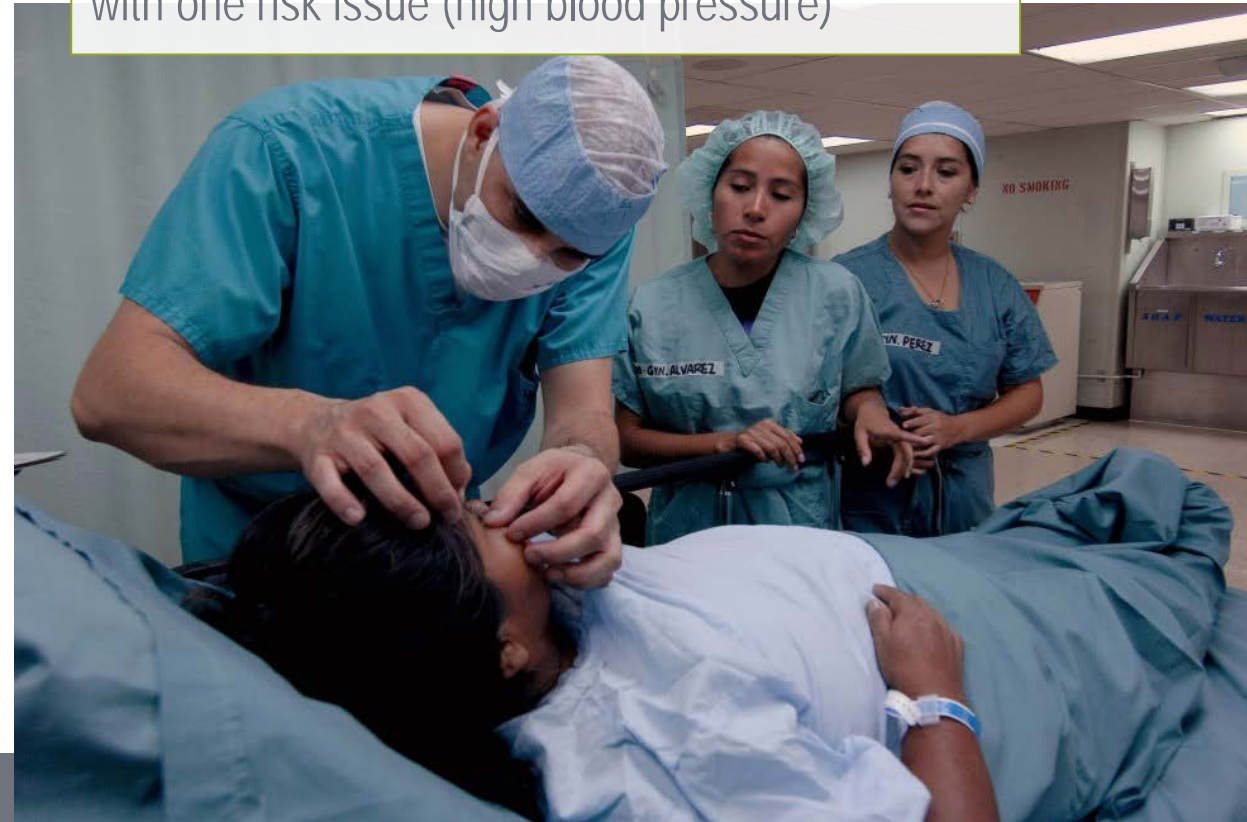
- *STARS recommendations* submitted in SMART SCALE have had an 80% funding success rate

Project Pipeline – Focus on Board Priorities




VTrans **PRIORITY LOCATIONS** are identified based on overlap and intensity of *multiple need categories* that are affecting transportation system health and performance.

Doctor's will focus on a patient with overlapping risk factors (obese, high blood pressure, diabetes, high cholesterol, etc) before a patient with one risk issue (high blood pressure)



Project Pipeline – Limited Resources

...a triage approach to addressing transportation challenges

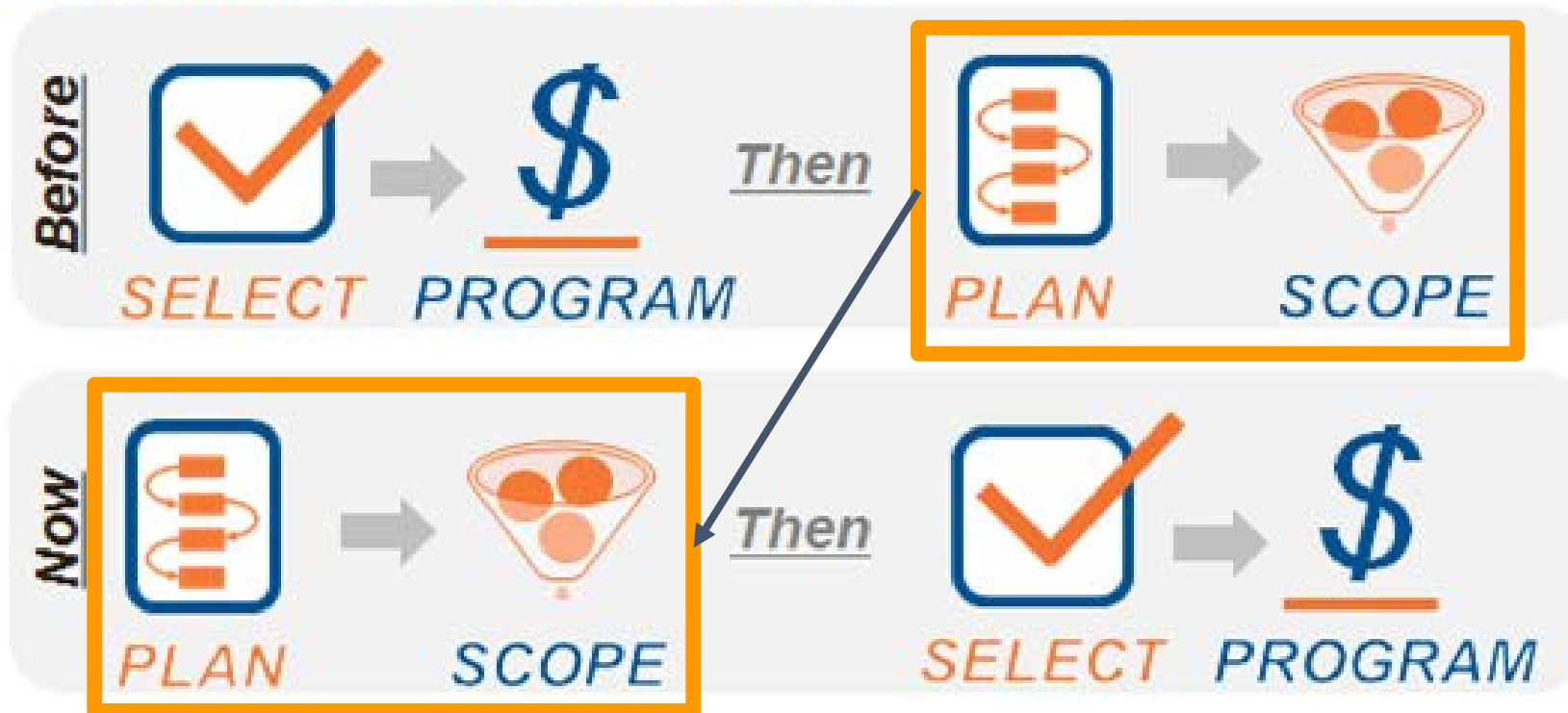
| Category 1 | Category 2 | Category 3 | Category 4 | Category 5 |
|---|--|--|--|---|
| <i>Resuscitation</i> | <i>Emergency</i> | <i>Urgent</i> | <i>Semi-urgent</i> | <i>Non-urgent</i> |
|  |  |  |  |  |
| Examples: Heart attack, major car accident | Examples: Severe blood loss, overdose | Examples: Head injury (conscious), breathing difficulties, infection | Examples: Sprained ankle with possible fracture, eye inflammation | Examples: Cut not requiring stitches, common cold |
| Deadline: Immediate (seconds) | Deadline: Within 10 minutes | Deadline: Within 30 minutes | Deadline: Within 1 hour | Deadline: Within 2 hours |

Project Pipeline – Selecting Study Locations

- Used the following guidelines:
 - Five locations per District
 - VTrans priority 1 needs
 - Remove locations to be addressed by funded projects – Six Year Plan, NVTA, CIPs, etc.
 - Remove locations with previous and current STARS/AMPS/Corridor Studies
 - Look for high benefit Round 4 SMART SCALE that were not funded
- Potential study locations reviewed with District Board member and 5 locations finalized

Project Pipeline - Improving Planning and Readiness

Paradigm Shift – Project Selection



Project Pipeline - Performance Based Planning

Does this decision tree make sense?



New Engine



New Car



Project Pipeline - Performance Based Planning

Or is this more logical...

Understand the problem



Develop/Test Solutions




Project Pipeline - Improve Data Tools and Collaboration

Centralize data collection and leverage DASHBOARDS to streamline problem diagnosis

Main Template

| | | |
|---|--|---|
|  |  |  |
|  |  |  |
|  |  | |
|  |  | |
|  |  | |

| | |
|---|---|
|  | Dashboards are password protected and only accessible to staff with VDOT network access and consultant team members who have signed data use agreements |
|---|---|

TTI Dashboard



PROJECT PIPELINE

File Export Share

Project_ID: NV01

NV01 Project Pipeline #1 - Route 236 from Prosperity Avenue to Wakefield Chapel Road

TTI by TOD Weekday

Location Search

- ANNANDALE RD/...
- BACKLICK RD
- BRADDOCK RD
- BRADDOCK RD/E...
- HERITAGE DR/HU...
- I-495/CAPITAL BE...
- I-495/WOODBUR...
- PROSPERITY AVE
- US-50/ARLINGTO...
- VA-123/CHAIN B...
- VA-236/LITTLE RI...
- VA-236/MAIN ST

TTI by TOD Weekend

INRIX TMCs and Project Pipeline 2-mile Buffers Areas

Daily average number of hours with TTI value greater than thresholds

| | | |
|--------------------|--------------------|--------------------|
| 8.97 TTI >= 1.3 | 5.05 TTI >= 1.5 | 1.13 TTI >= 2.0 |
|--------------------|--------------------|--------------------|

Year: 2019 Day: All Period Group: All

Data is related to each Study Location

Interactive with ability to filter to better understand issues

Crash Dashboard



Project Name: NV01 Project Pipeline #1 - Route 236 from Prosperity Avenue to Wakefield Chapel Road

Project ID: NV01

Day of Week: All

Crash Severity: All

Collision Type: All

Multi_Vehicle: All

Roadway Depart...: All

More Filters

| Crash Severity | Count | % Count |
|--------------------------------|-------------|-------------|
| Property Damage Only | 2594 | 66% |
| Rear End | | 33% |
| Angle | | 15% |
| Sideswipe - Same Direction | | 9% |
| Fixed Object - Off Road | | 6% |
| Head On | | 1% |
| Other | | 1% |
| Sideswipe - Opposite Direction | | 1% |
| Deer | | 0% |
| Fixed Object In Road | | 0% |
| Non-Collision | | 0% |
| Backed Into | | 0% |
| Other Animal | | 0% |
| Visible Injury | 802 | 20% |
| Rear End | | 11% |
| Angle | | 4% |
| Fixed Object - Off Road | | 2% |
| Sideswipe - Same Direction | | 1% |
| Pedestrian | | 1% |
| Head On | | 1% |
| Other | | 0% |
| Non-Collision | | 0% |
| Fixed Object In Road | | 0% |
| Deer | | 0% |
| Other Animal | | 0% |
| Nonvisible Injury | 414 | 11% |
| Rear End | | 6% |
| Angle | | 3% |
| Fixed Object - Off Road | | 0% |
| Pedestrian | | 0% |
| Total | 3935 | 100% |

Crash by Collision Type

Buffer Distance in miles: 0.00 to 1.99

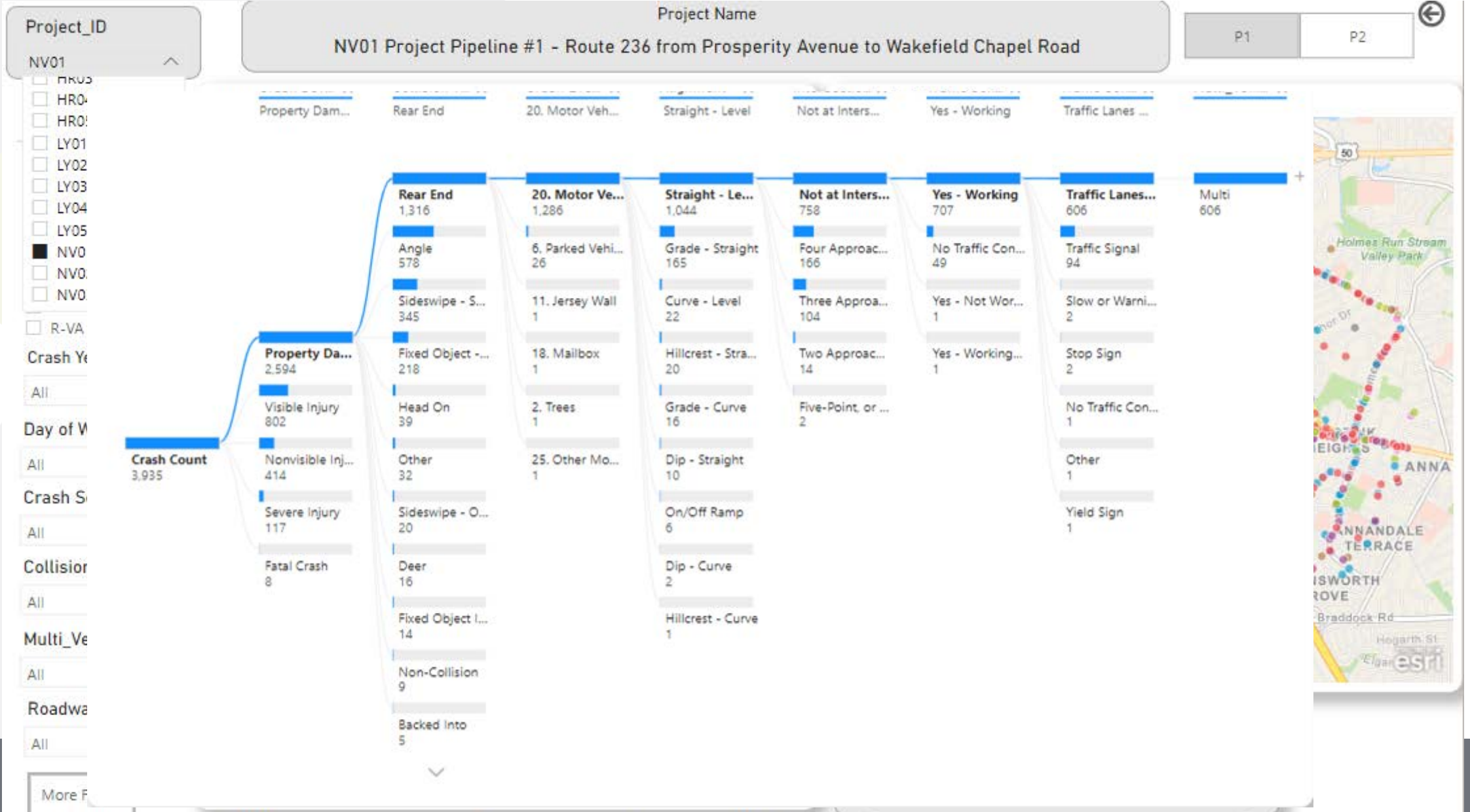
Interactive map with ability to change buffer

Provides ability to more quickly understand the problems

Crash Dashboard



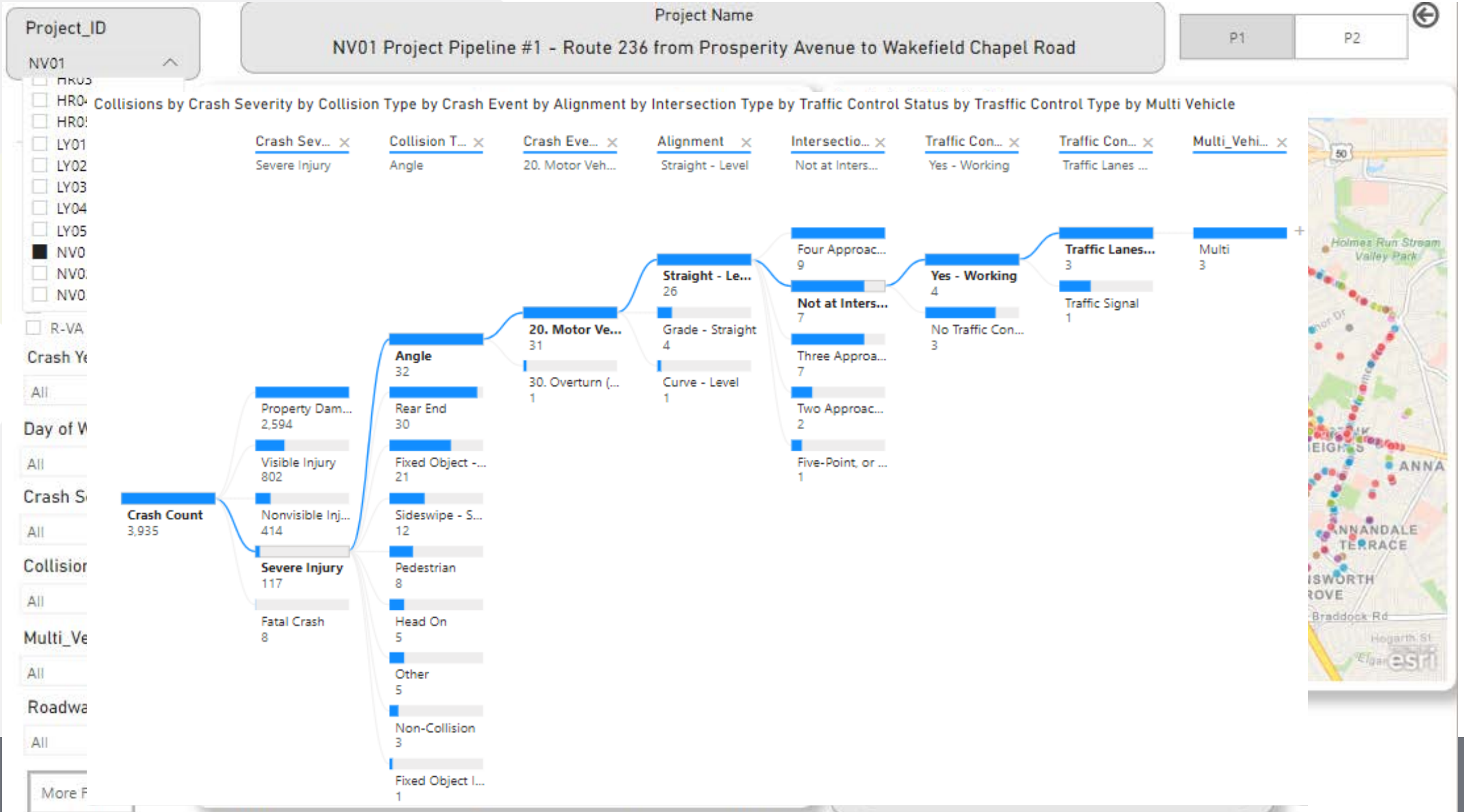
PROJECT PIPELINE



Crash Dashboard



PROJECT PIPELINE





Regional Data Sources



Project_ID: NV01

Trips From Project Location

NV01 Project Pipeline #1 - Route 236 from Prosperity Avenue to Wakefiel...

| Mode | %GT Weights | Weights |
|---------------------|-------------|---------------|
| Auto (driver) | 65% | 57,801 |
| Auto (passenger) | 25% | 22,707 |
| Walk | 3% | 2,418 |
| School Bus | 3% | 2,259 |
| Bus | 2% | 1,881 |
| Rail | 2% | 1,402 |
| Uber/Lyft/Rideshare | 1% | 477 |
| Bike | 0% | 138 |
| Total | 100% | 89,083 |

| Origin Purpose | %GT Weights | Weights |
|-----------------|-------------|---------------|
| Home | 60% | 53,258 |
| Other | 9% | 8,396 |
| Drop Off/Pick U | 9% | 7,819 |
| School | 8% | 7,182 |
| Work | 6% | 5,785 |
| Shop | 6% | 5,546 |
| Gas/EV Charging | 1% | 619 |
| Station | 0% | 370 |
| Work-related | 0% | 108 |
| Daycare | 0% | 108 |
| Total | 100% | 89,083 |

| Dest Purpose | %GT Weights | Weights |
|-----------------|-------------|---------------|
| Home | 23% | 20,131 |
| Work | 9% | 16,520 |
| Other | 8% | 15,894 |
| School | 14% | 12,518 |
| Shop | 13% | 11,643 |
| Drop Off/Pick U | 11% | 10,240 |
| Work-related | 2% | 1,671 |
| Gas/EV Charging | 0% | 359 |
| Station | 0% | 107 |
| Daycare | 0% | 107 |
| Total | 100% | 89,083 |

Understand mode splits and trip purposes

| Access Mode | %GT Weights | Weights |
|---------------|-------------|--------------|
| Walking | 83% | 4,026 |
| Park and ride | 17% | 916 |
| Total | 100% | 5,542 |

| Rail Boarding Station | %GT Weights | Weights |
|-----------------------|-------------|--------------|
| Dunn Loring | 42% | 489 |
| Pentagon | 42% | 486 |
| West Falls Church | 16% | 184 |
| Total | 100% | 1,159 |

| Rail Exit Station | %GT Weights | Weights |
|--------------------|-------------|--------------|
| L'Enfant Plaza | 21% | 244 |
| Crystal City | 21% | 243 |
| Foggy Bottom - GWU | 21% | 243 |
| Federal Triangle | 16% | 184 |
| McPherson Square | 12% | 138 |
| Metro Center | 9% | 107 |
| Total | 100% | 1,159 |

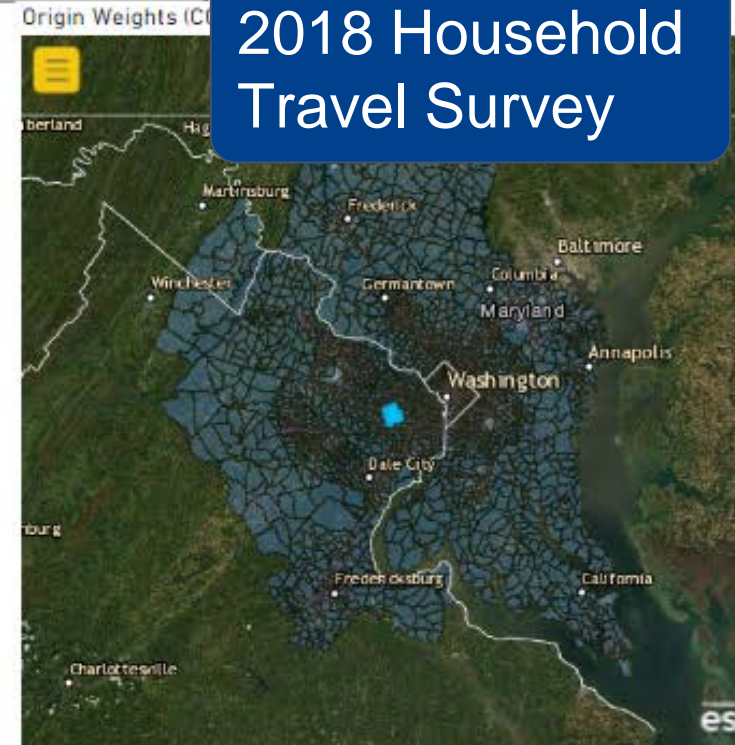
| Transit Egress Mode | %GT Weights | Weights |
|---------------------|-------------|--------------|
| Walking | 100% | 5,542 |
| Total | 100% | 5,542 |

| Destination Jurisdiction | %GT Weights | Weights |
|--------------------------|-------------|---------------|
| Fairfax | 77% | 68,894 |
| Fairfax City | 7% | 6,057 |
| Arlington | 8% | 7,132 |
| Total | 92% | 82,083 |

%GT Weights by Departure Time



2018 Household Travel Survey



Destination Weights (COG TAZ level)



Regional Data Sources



PROJECT PIPELINE

NV01 Project Pipeline #1 - Route 236 from Prosperity Avenue to Wakefield Chapel Road

MWCOG Travel Demand Model

Understand current and projected travel demand and behaviors

Project_ID

NV01

- CU01
- CU04
- CU05
- FR01
- FR03
- FR04
- FR05
- NV01
- NV02
- NV03

| Total Employment | |
|---------------------------|--------|
| 2019 | 50,839 |
| 2045 | 56,552 |
| % EMP Growth 11.2% | |

| 2019 Trip Productions by Mode | | |
|-------------------------------|---------------|---------------|
| Mode | Trips | % Share |
| Drive Alone | 16,941 | 74.3% |
| Shared Ride | 2,349 | 10.3% |
| Drive Transit | 2,069 | 9.1% |
| Walk Transit | 1,429 | 6.3% |
| Total | 22,788 | 100.0% |

| 2045 Trip Productions by Mode | | |
|-------------------------------|---------------|---------------|
| Mode | Trips | % Share |
| Drive Alone | 17,061 | 72.1% |
| Shared Ride | 2,429 | 10.3% |
| Drive Transit | 2,316 | 9.8% |
| Walk Transit | 1,842 | 7.8% |
| Total | 23,648 | 100.0% |

| 2019 Trip Attractions by Mode | | |
|-------------------------------|--------------|---------------|
| Mode | Trips | % Share |
| Drive Alone | 5,289 | 85.9% |
| Shared Ride | 670 | 10.9% |
| Walk Transit | 192 | 3.1% |
| Drive Transit | 3 | 0.0% |
| Total | 6,154 | 100.0% |

| 2045 Trip Attractions by Mode | | |
|-------------------------------|--------------|---------------|
| Mode | Trips | % Share |
| Drive Alone | 5,171 | 82.6% |
| Shared Ride | 848 | 13.5% |
| Walk Transit | 238 | 3.8% |
| Drive Transit | 6 | 0.1% |
| Total | 6,263 | 100.0% |

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| PM Peak Total Volumes | |
|------------------------------|-----------|
| 2019 | 1,774,218 |
| 2045 | 1,995,016 |
| % PM Vol Growth 12.6% | |

| AM Peak Vehicle Miles (VMT) | |
|------------------------------|---------|
| 2019 | 347,230 |
| 2045 | 395,164 |
| % AM VMT Growth 13.8% | |

| AM Peak Vehicle Hours (VHT) | |
|------------------------------|--------|
| 2019 | 13,396 |
| 2045 | 15,616 |
| % AM VHT Growth 16.6% | |

| AM Peak Vehicle Hours of Delay (VHD) | |
|--------------------------------------|-------|
| 2019 | 6,073 |
| 2045 | 7,262 |
| % AM VHD Growth 19.6% | |

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| PM Peak Vehicle Hours of Delay (VHD) | |
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| 2019 | 9,415 |
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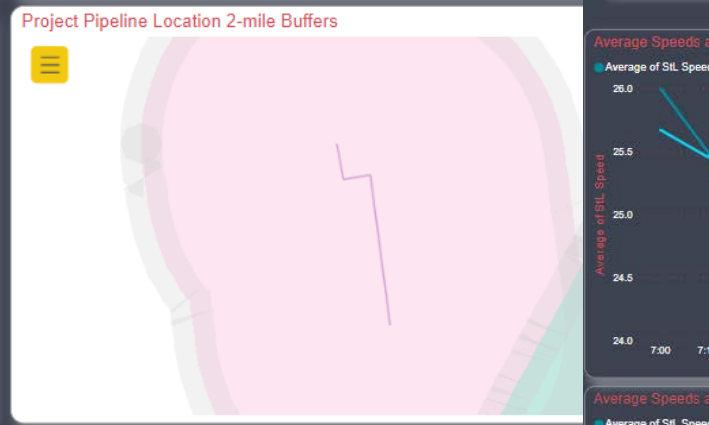
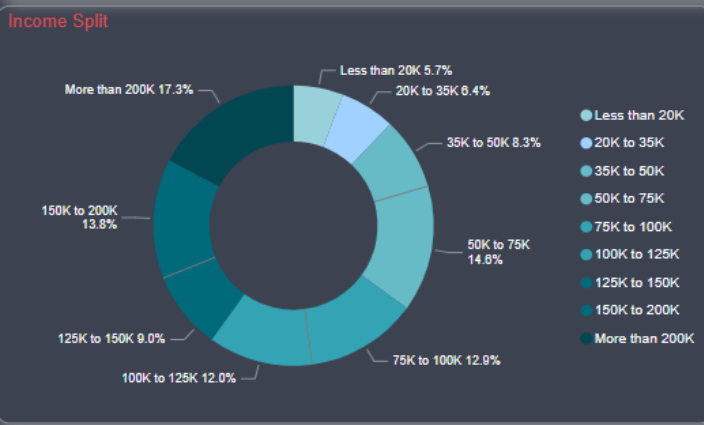
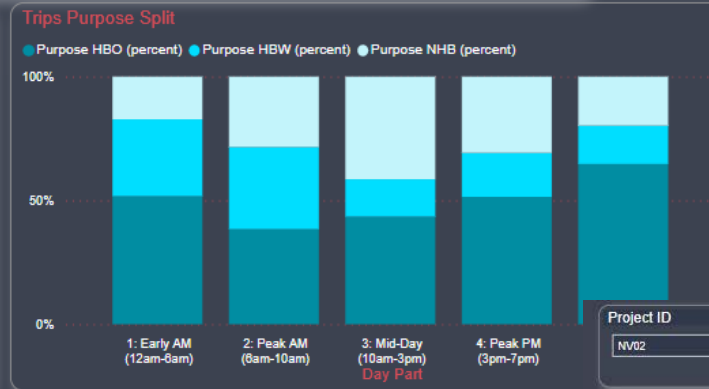
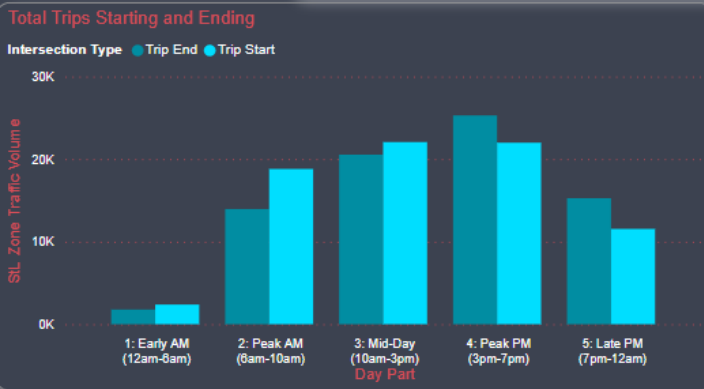
Streetlight Data



Project ID: NV01

Zone Activity Analysis based on 2-mile Buffers of Candidate LRS Lines

NV01 Project Pipeline #1 - Route 236 from Prosperity Avenue to Wakefield Chapel Road

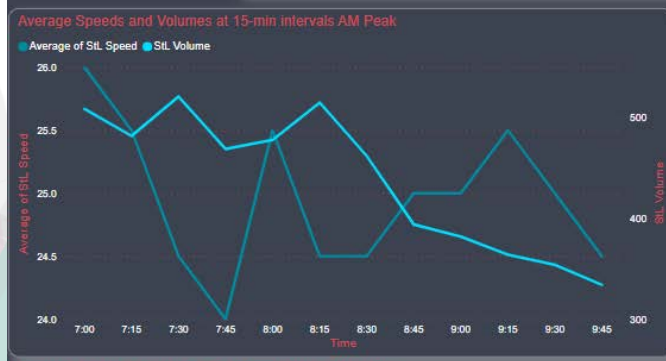


Understand time of day dynamics

Project ID: NV02

Segment Analysis based on Candidate Location LRS Lines

NV02 Project Pipeline #2 - Route 29 from Machen Road to Centerwood Drive



| | |
|---------------------------------|---------------------------------|
| Total Volumes - AM Peak (7-9am) | Average Speed - AM Peak (7-9am) |
| 6,858 | 25.16 |
| Total Volumes - PM Peak (4-6pm) | Average Speed - PM Peak (4-6pm) |
| 7,526 | 17.19 |

Timeline



Completed:

- Finalize study locations and issue Phase 1 task orders
- Hold initial coordination meetings local partners

Phase 1 - Underway - August/October

- Analysis to understand problems (VTrans needs) and the causes
- Develop range of potential alternatives to improve performance

Phase 2 - October/December

- Stakeholder engagement and feedback
- Develop multimodal investment strategy

Phase 3 - January/March

- Investment strategy cost estimation and refinement

Project Pipeline

QUESTIONS?