



Broadband Access to State Highway Right-of-Way

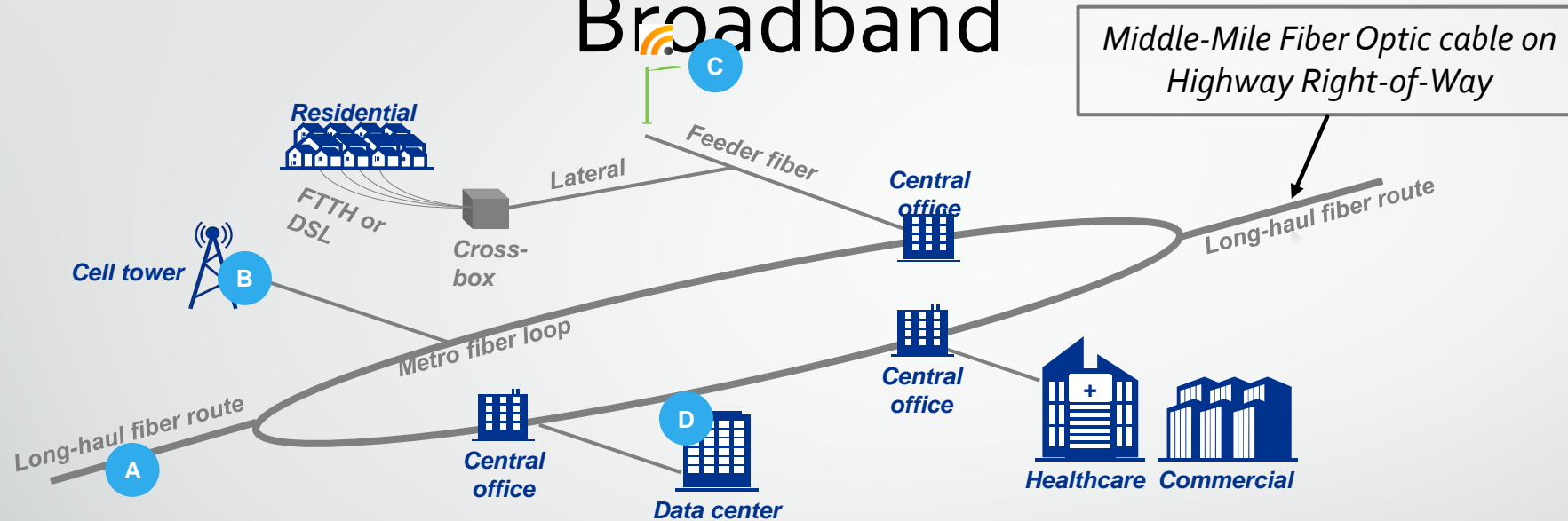
2021 JTC Study

Presentation to Washington State Transportation Commission

January 19, 2022

- Utility access to state highway right-of-way:
 - ✓ Generally restricted under prior law
 - ✓ Required WSDOT variance – variances granted, but process is cumbersome
- ESHB 1457 removes prohibition for fiber optic infrastructure
 - ✓ Directed WSDOT to increase coordination with the State Broadband Office to collaboratively work towards state goals
 - ✓ Develop a Dig Once policy
 - ✓ Strategically “open” limited access highway rights of way to increased broadband occupancy
 - ✓ Directed JTC study to:
 - Enhance mapping of Broadband coverage
 - Assist WSDOT in developing policies governing permitting decisions and cooperative partnerships with industry
- WSDOT right-of-way permitting on hold pending results of analysis

Highway Right of Way hosts “Middle Mile” Broadband



	A	B	C	D
	Fiber Providers	Towers	Small Cells	Data Centers
Participant Description	Own the fiber routes and offer both lit and dark fiber services to enterprise, wholesale, and consumer segments	Steel beam structure that houses electronic equipment from carriers to transmit radio frequencies (RF)	Consist of small radio equipment and antennas that can be placed on structures such as streetlights, building sites, or poles	Data center is a physical facility that organizations use to house their critical applications and data.

Fiber Optic Network is Future Proof

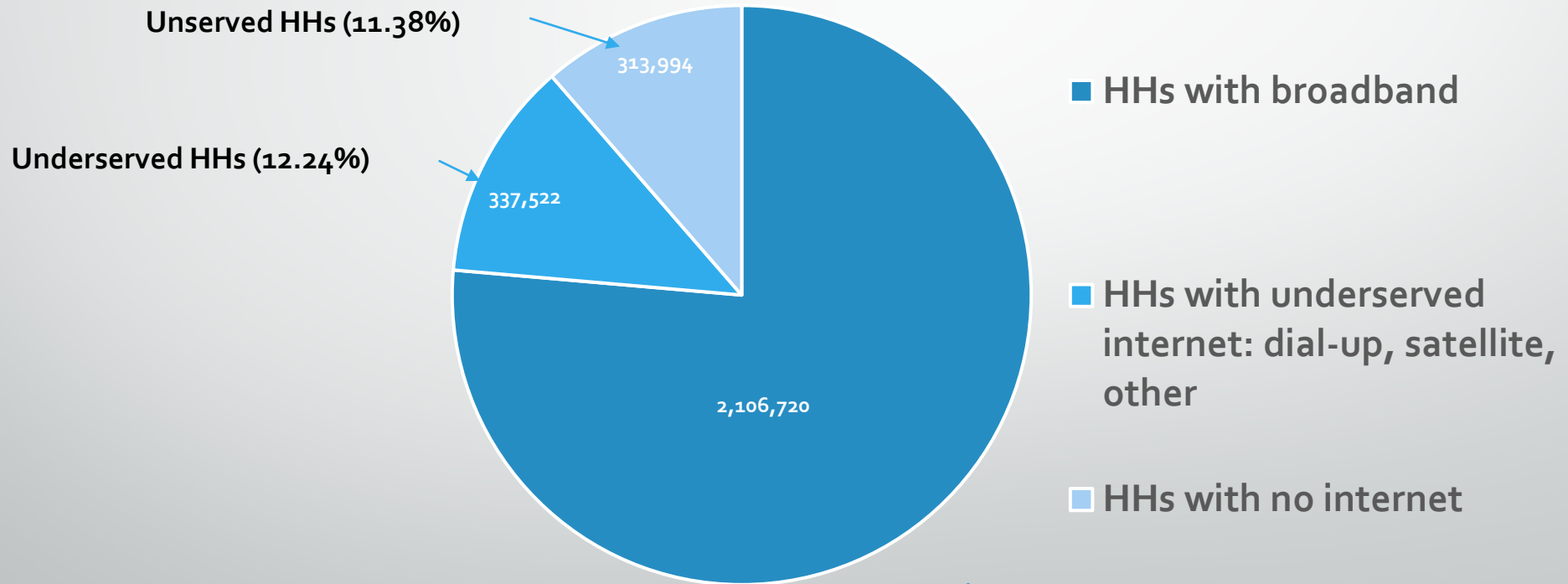
- Fiber Centrality: Feeds both
 - ✓ Direct fiber to the home (FTTH) service
 - ✓ Wireless alternatives including LTE FWA and 5G FWA
- Fiber supports projected Future Use Cases
- Low technology obsolescence risk
- Aligns with the State Transportation Infrastructure/ROW strategy
- Better than Satellite service:
 - ✓ More affordable and higher performance
 - ✓ Not subject to interruption from weather
- Fiber optic technology is more than sufficient to meet state goals

Decision Matrix for Right-of-Way Permitting

- Data Problem:
 - ✓ Presence of fiber does not necessarily mean open access
 - ✓ Telcos / carrier level data for existing fiber presence is proprietary
 - ✓ Multiple data sources (i.e., existing fiber presence, average internet speed, and number of service providers) are used for the analysis
- Can Estimate Coverage by looking at:
 - ✓ Where is Fiber located?
 - ✓ What are Broadband Speeds by location?
 - ✓ Where are open access providers?

Aggregate Conclusion: Number of Unserved and Underserved Households in Washington

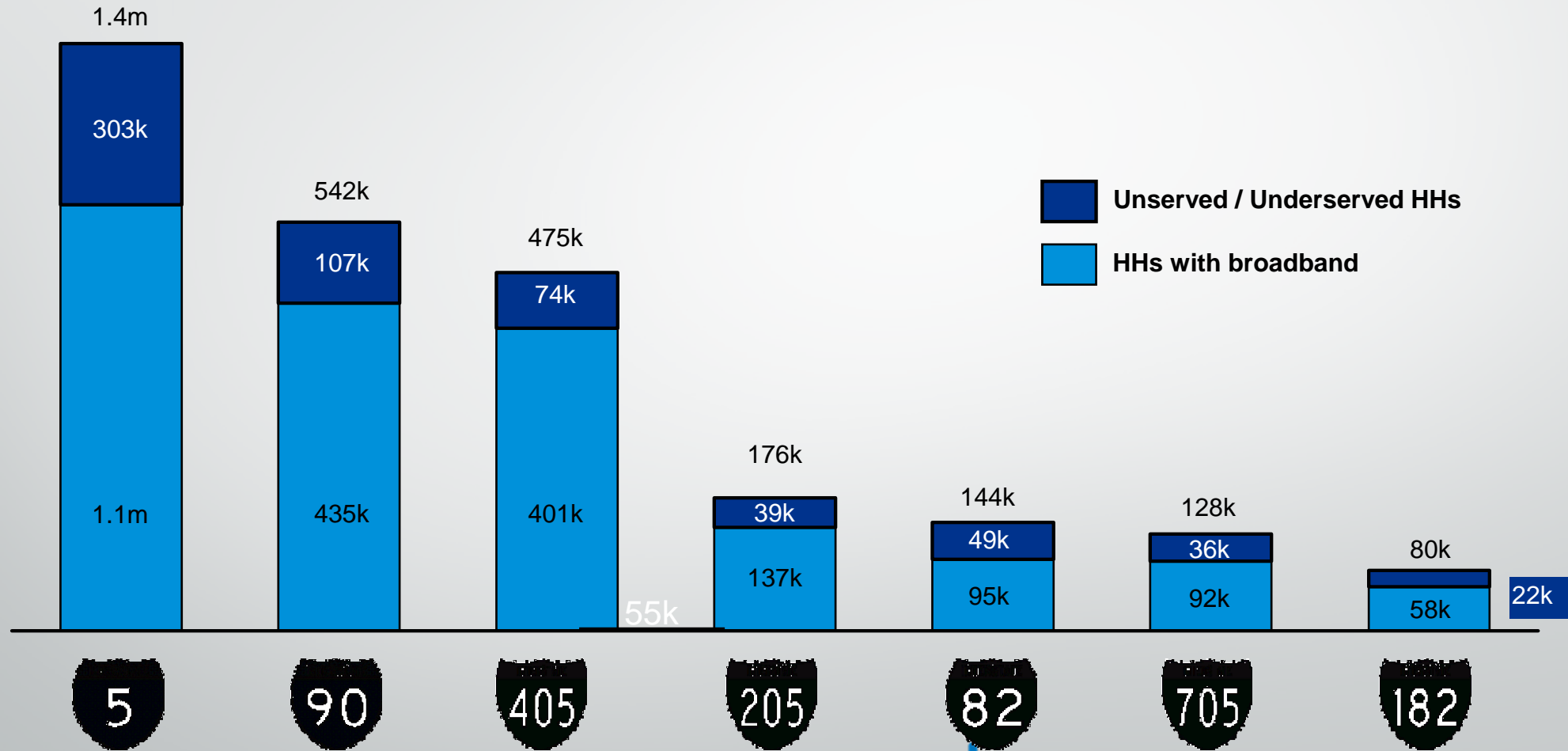
Unserved / Underserved Households in Washington



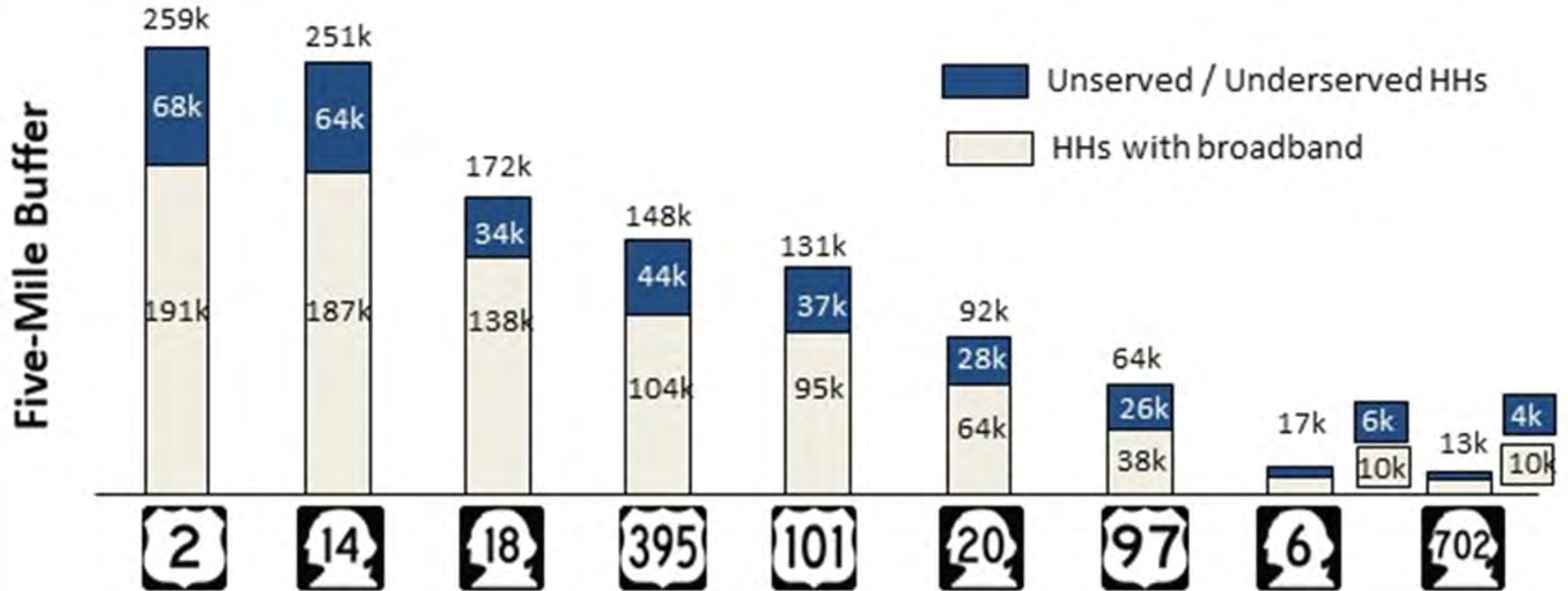
Prioritizing Broadband access to state highway right-of-way - Preliminary

Nos.	Evaluation Criteria	Max. Score	Definition
1	Service need: Number of unserved/underserved households	40 points	<ul style="list-style-type: none"> • Unserved / underserved households indicates the level of connectivity of the area considered and severity as to lack of service • Measures effectiveness of public investment to address # of unserved / underserved households within a corridor
2	Current infrastructure: Where is open access fiber optic cable lacking?	30 points	<ul style="list-style-type: none"> • Measures lack of open access/availability to serve the underserved market • Measure lack of excess of capacity to serve the current market inferred by fiber presence, current speed score and number of providers in the served markets • Measures extent to which new highway broadband infrastructure could be effective to introducing new service and/or drive competition
3	Population Centers Covered / Points of Presence Addressed	30 points	<ul style="list-style-type: none"> • Measures number of population centers / points of presence that could be addressed by a corridor
	TOTAL	100 points	

Prioritization of Permitting Freeway Right of Way Access – Interstates



Prioritization of Permitting Right-of-Way Access – Select State Routes



Recommending Right of Way Strategies for WSDOT

1. Review current WSDOT Right of Way Encroachment Policy
2. Receive input from WSDOT on
 1. key opportunities and challenges regarding ROW encroachment and
 2. current systems related to fiber infrastructure
3. Benchmark relevant right of way encroachment policies from other states and review relevancy for WSDOT
4. Review of mutually beneficial partnership structures with DOT and financing models from precedent transactions and leading practices from other states
5. Review of analysis performed by Nossaman LLP on state and federal laws/regulations
6. Incorporate input from the Staff Workgroup

Recommendation Summary

- Recommended Governance Roles and Responsibilities between DOT and Broadband Office
- Reviewed Right of Way policies from other states
- Recommended specific strategies
- Analyzed available partnership models

Next Steps

- JTC study completed
- DOT will move forward with policy adoption and rulemaking based on study input.
- Turning it over to Ahmer Nizam from DOT to discuss that process and answer questions.

Appendices

- Further detail on consultant policy recommendations

Governance – Recommended Roles and Responsibilities (Sec. 7(1)(b),(e))

Focus Area	Department of Commerce (Broadband Office)	WSDOT
1. Overview	<ul style="list-style-type: none"> ▪ Statewide coordination single point of contact ▪ Transparent information sharing regarding: <ul style="list-style-type: none"> ➤ existing infrastructure, mapping of assets, and policies 	<ul style="list-style-type: none"> ▪ Address the transportation connectivity needs ▪ Owner and operator of broadband network(s) located within ROW
2. Stakeholder consultation and coordination	<ul style="list-style-type: none"> ▪ Public agencies ▪ Tribal nations ▪ Private sector providers ▪ Local communities 	<ul style="list-style-type: none"> ▪ WSDOT ROW specific coordination with governmental agencies, counties and cities, and private sector ▪ Transportation related connectivity needs
3. Financial Planning & Administration	<ul style="list-style-type: none"> ▪ Pursue funding opportunities, administer grant programs, evaluate ROI for the planned investments ▪ Establish 5-year capital investment program ▪ Assess and prioritize public investments 	<ul style="list-style-type: none"> ▪ financial planning and project prioritization for transportation related fiber deployment, and to support Intelligent Transportation Systems (“ITS”) and WSDOT operations ▪ Assess and implement mutually beneficial opportunities for broadband investment in WSDOT ROW
4. Policies and Implementation	<ul style="list-style-type: none"> ▪ Developing & implementing policies, strategies and plans to increase broadband affordability, adoption, reliability and accessibility 	<ul style="list-style-type: none"> ▪ Provide input to Broadband Office on transportation connectivity related broadband policies
5. Middle Mile Fiber Network Operations	<ul style="list-style-type: none"> ▪ Leveraging a neutral private sector host on state-initiated corridors and interstate highways to coordinate O&M 	<ul style="list-style-type: none"> ▪ Accomplish WSDOT transportation objectives ▪ Assist on state broadband operational metrics ▪ Operate the network directly or through neutral host to meet operational performance metrics <ul style="list-style-type: none"> ➤ E.g., transportation safety and congestion management

Governance – Benchmarking

State	ROW Policies
Utah	Distinct Broadband Partnership Office and executive support
Arizona	Standardized conduit specification office with a rural focus
California	Information sharing to telecom companies on state highway projects
Nevada	Executive support and information Sharing
Colorado	Resource sharing & In-Kind Contribution
West Virginia	Proactive Coordination with Telecom Carriers
Virginia	Fiber Optic Resource Sharing
Georgia	Incentivize Collaboration
Wisconsin	Fee Reduction for unserved location and Agreement/Permit Term Length
New York	Tiered Fiber Optic Installation Fees
Maryland	Fiber Leasing

Governance – Recommended WSDOT ROW Strategies (Sec. 7(1)(a),(c)-(e))

Key Policy Recommendations	
Standardize Specifications for Common Infrastructure	<ul style="list-style-type: none"> Establish standardized specifications for private sector and WSDOT initiated projects and WSDOT initiated projects, considering:
	A. Capacity: accommodate current and anticipated future broadband needs
	B. Segmentation: ensure necessary level of separation for commercial, network security, operational and/or maintenance purposes
	C. Access: e.g., vaults and hand-holes
	D. Costs: consider that future may require trenches to be widened or deepened
	E. Robustness: develop standards for the materials, construction methods, and installation of fiber cable strands
Collaboration with Stakeholders	<ul style="list-style-type: none"> Ensure that stakeholders, WSDOT, and providers work together to plan and execute project phases Providing construction plans and standards and leading practices to local governments re: fiber installation
Develop Information Sharing, Tracking and Infrastructure Management System	<ul style="list-style-type: none"> Make information on the location of existing fiber and conduit(s) more easily available to stakeholders and local governments Develop system to track planned, ongoing, and completed construction (e.g., asset management system) Prioritize and select projects for locality participation Establish a method to quickly notify potentially interested parties and to coordinate participation with project contractor(s)
Joint Trenching	<ul style="list-style-type: none"> Voluntary Joint Trenching: Requirement to inform the utility industry and other service providers interested in co-locating
Resource Sharing Agreements	<ul style="list-style-type: none"> Develop agreements with service providers for the use of WSDOT fiber infrastructure (i.e., # of stands reserved for use by DOTs) in exchange for use of state ROW and have standard templates/specifications for broadband infrastructure installation

Governance - Analysis and Benchmarking of ROW Encroachment Structures (Sec. 7(1)(a),(c)-(e))

Traditional Easement / Encroachment ROW Request

- Traditional “Utility Permit Application” completed by developer for the state entity to review
- Most common process in the US also followed by WSDOT
 - Used by NJ, MD, and TN, where fiber is treated as any other utility installation
- Current WSDOT Encroachment ROW Request
 - WSDOT requires the developer planning to place utility lines in a state highway right-of-way to obtain a Utility Permit or Franchise by submitting an application
 - Developer must also pay reasonable cost to WSDOT for investigating, handling and granting the Utility Permit or Franchise
- Includes thorough check of safety issues and alignment to DOT future transportation needs, rather than specific review into fiber commercial needs
- Many DOTs utilize district offices to review ROW encroachment requests specific to a given geography

Distinct Fiber Trading / Mutual Broadband Partnership Office

- Applied in CO and UT to proactively drive broadband development
- Requires broadband knowledge within DOT to inform the approval process
- Developers viewed as partners in the development process
 - Work collaboratively with the government to ensure sufficient fiber is installed in areas necessary
- Utilizes MSA and active databases of installed fiber, highlighting in-kind contributions as a means of meeting both gov’t’s and private developer needs

Governance – Considerations for Washington ROW Encroachment Structure *(Sec. 7(1)(a),(c)-(e))*

Recommended Administration/Partnership Models

- States across the US utilize a range of structures for broadband deployment within state ROW; these structures have been synthesized across three main categories:
 1. **Transactions** – A transactional approach could be taken for priority corridors to the DOT as well for meeting state broadband goals. These are typically taken for interstates and/or for long/back haul routes
 2. **Flexible Partnerships** – Mutually beneficial partnership approach provides the flexibility for opportunity to drive both DOT and developer needs that allows for a range of solutions in driving installation of fiber broadband
 3. **Permits** – No Fee, Fixed Pricing or Tiered Pricing are market driven, reactive, and usually designed for shorter lengths of easement needed and predetermined locations for utility installation. These are typically used for corridors/routes that are not necessarily priorities for the DOT or the State

Right of Way – Recommended Administration/Partnership Models (Sec. 7(1)(c)-(e))

- Based on benchmarking and review of current WSDOT policy, the following are the administration and partnership models recommended

Program Type / Approach	Program Structure / Model	Options	Example States
State-led Approach (State and DOT driven for Priority Corridors)	Transactions <i>Targeted, mostly competitively procured solution where DOT makes a capital investment and/or service payment.</i>	Neutral Host Operating Agreement	✓ PA, NC, GA, KY
Private Sector Initiated Approach (If the proposal is for a Priority Corridor)	Can be Transactional or Permits Based <i>Program structures that do not clearly fit in 'Permits' or 'Transaction' categories</i>	Mutual Partnership	✓ CO, UT
Private-led Approach (Market Driven) For Non-Priority Corridors	Permits <i>Structure through which a developer applies for a permit, which, if approved, allows for installation. Often incorporates in-kind contribution.</i>	A. No Fee	✓ CO, OH, SC, TX, VA
		B. Fixed Pricing	✓ GA, PA, NJ
		C. Tiered Pricing	✓ FL, MD, NY, TN, UT, WI

- ❑ Any ROW strategy that WSDOT adopts will require to be consistent with the analysis of federal and state laws and regulations presented as part of Chapter 3
- ❑ Any partnership approaches specified above should meet the neutral and non-discriminatory requirements as outlined in the analysis provided for Chapter 3
- ❑ Limitations on compensation/fees to DOT are further delineated in the analysis provided for Chapter 3
- ❑ Model recommendations subject to WSDOT resource availability

Right of Way – Recommended Partnership Models: Leading Practices / Recommendations *(Sec. 7(1)(b)-(e))*

State /DOT Led Transactional Approach

- Administer a non-discriminatory open access network
- Establish points of presence along the state routes
- DOT leads procurement process
- DOC aggregates governmental needs
- Network O&M
- Integrate and diversify funding and financing sources
- Private sector co-invests to cover portion of capital costs
- Explore opportunities for private sector operator
- Ensure financial sustainability and recouping both capital costs invested and O&M costs

Private Sector Initiated Approach

- DOT will receive permit requests or solicited and unsolicited proposals from private sector entities for the priority corridors and routes
- Establish clear pathway for unsolicited proposals from the private sector
- Accelerate the overall process for reviewing and approving permit requests on priority corridors
- Private sector owns, operates, and maintains network and provides excess capacity for DOT's use
- DOT and Department of Commerce (Broadband office) should assess public side use cases (incl. transportation connectivity and rural broadband access) and enable to extent possible enable/negotiate an open access network

Permits

- Pricing to cover costs of review of the application and oversight
- Tiered Pricing based on importance of the corridor
- Set a specific time frame for review of 60 days from receipt of all required information for processing permits