



PENNSYLVANIA TURNPIKE COMMISSION BROADBAND PUBLIC-PRIVATE PARTNERSHIP



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AGENDA

- Existing Communications Systems
- Emerging Needs
- Broadband P3 Project

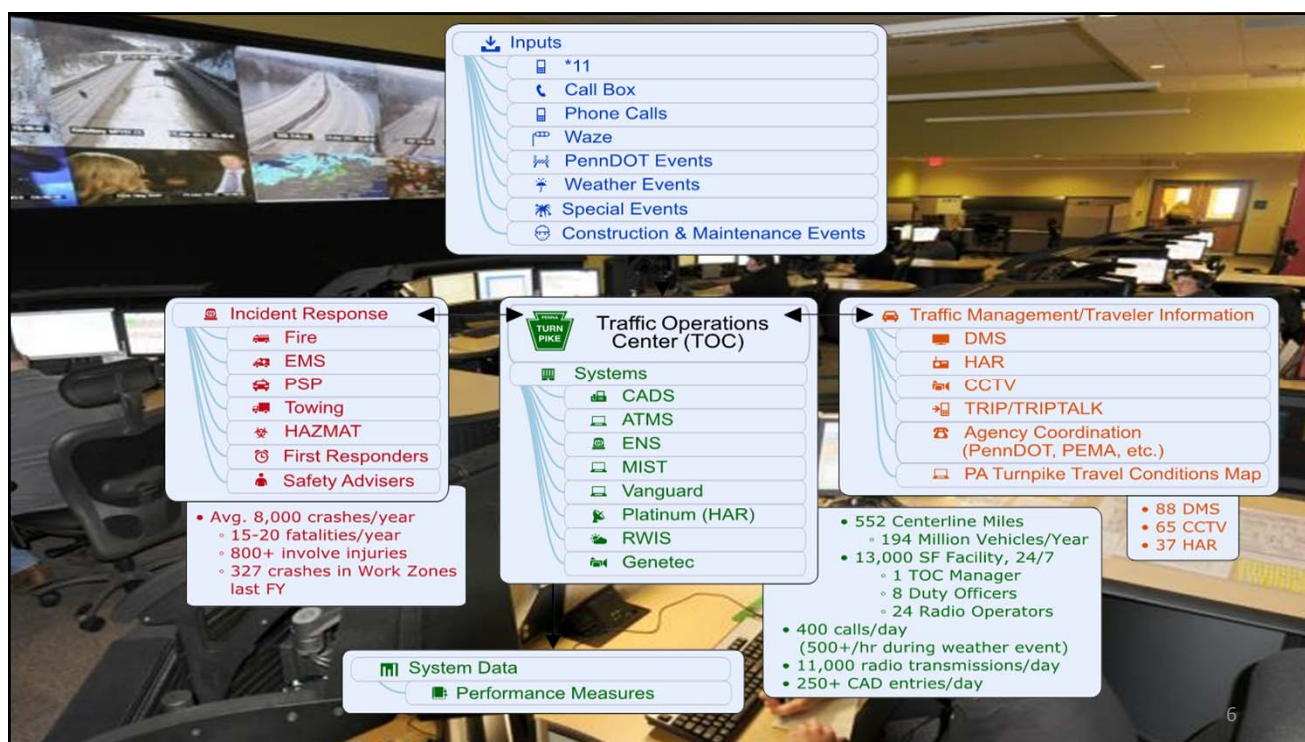


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Existing Communications Infrastructure

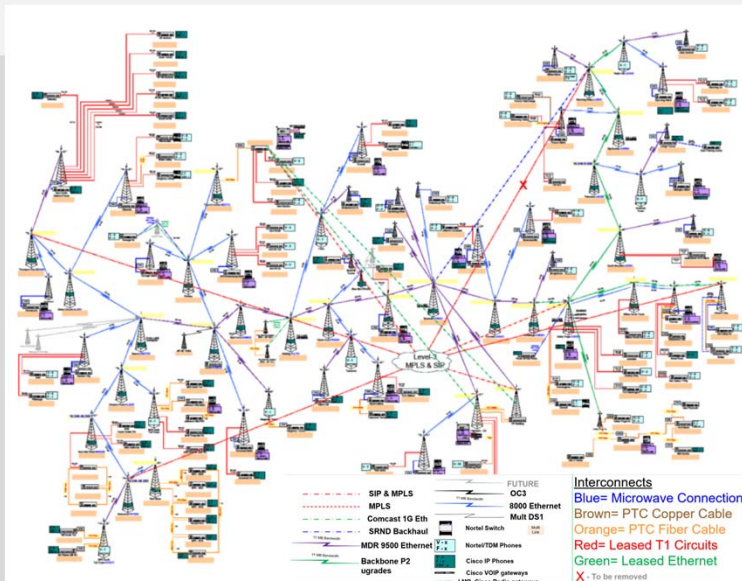
Towers 54
Fare Collection Facilities 68
Vehicles 200 Million Per Year
Miles 552
E-ZPass 76 Percent
Maintenance Buildings 22
Tunnels 5





COMMUNICATIONS TOWERS

- Radio Network
 - PTC Radios & Data
 - PA State Police
- Wireless Network
- Redundancy via Leased Circuits



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COMMUNICATIONS EXPANSION CHALLENGES

- Limited infrastructure capacity available – upgrading from 500 Mbps to 1 Gbps but not enough
- No more microwave spectrum to purchase
- High cost of repairs and leased bandwidth
- Capacity life – approximately 7 more years
- Limited geographic flexibility for future high-bandwidth devices

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Emerging Needs



TECHNOLOGY GROWTH

14%

per year average
bandwidth growth since
2003

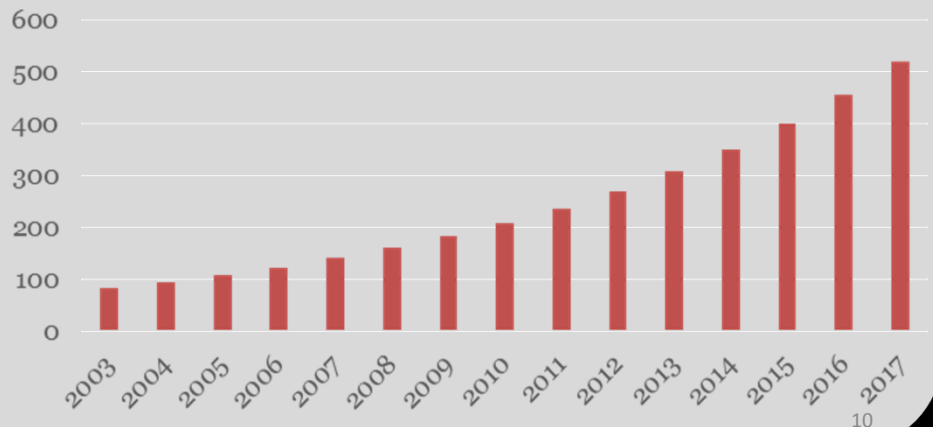
24%

per year average new
device growth

212%

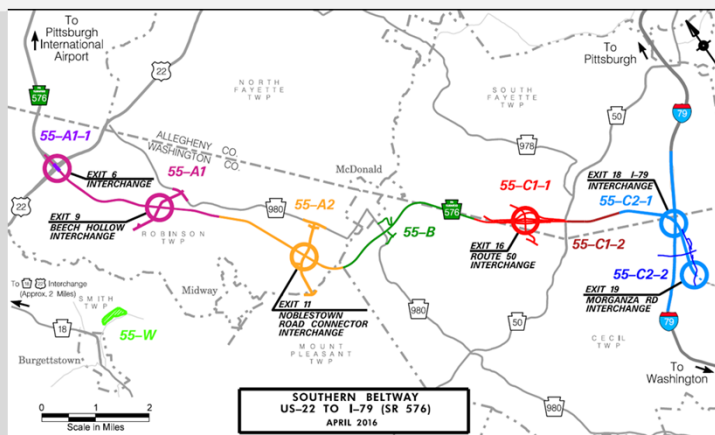
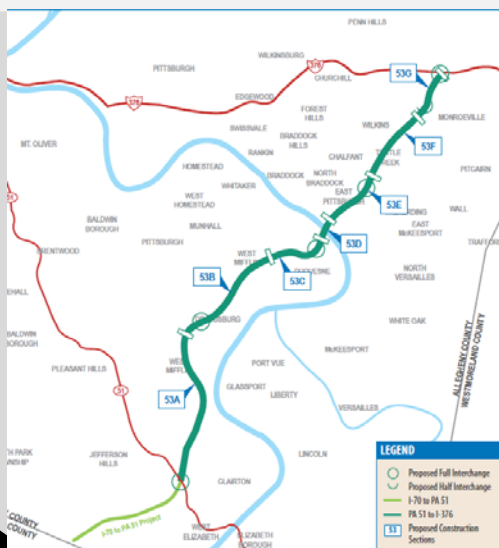
per year average data
storage growth

Combined Mbps





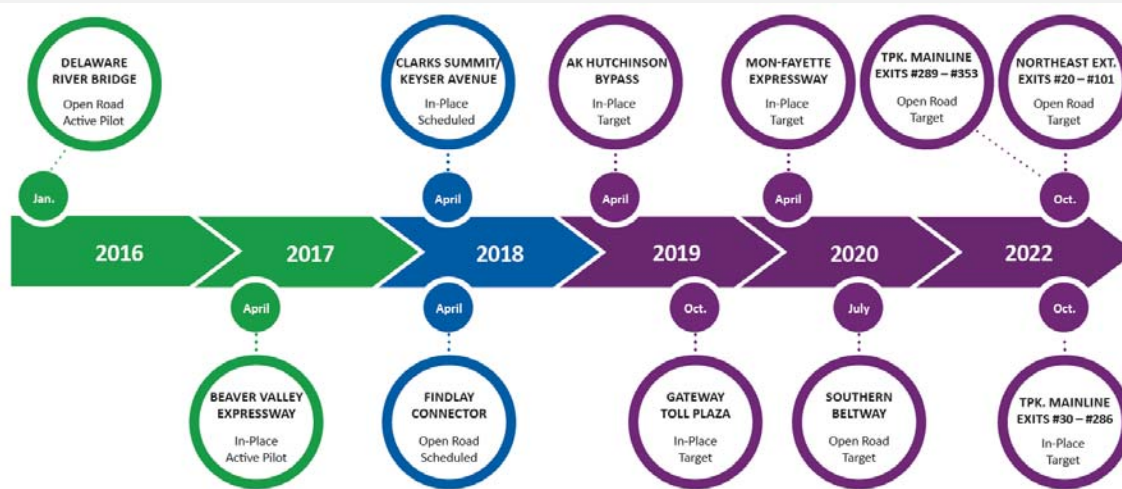
MAJOR EXTENSION PROJECTS



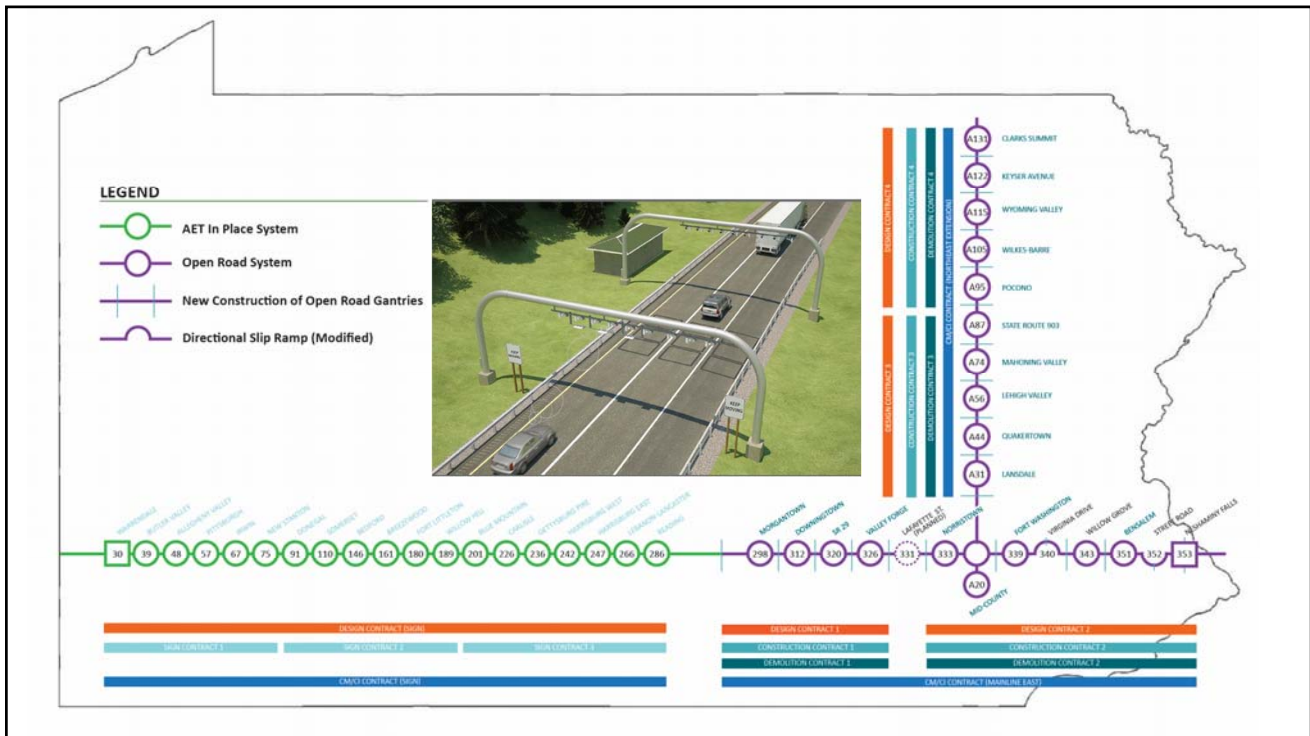
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CASHLESS TOLLING



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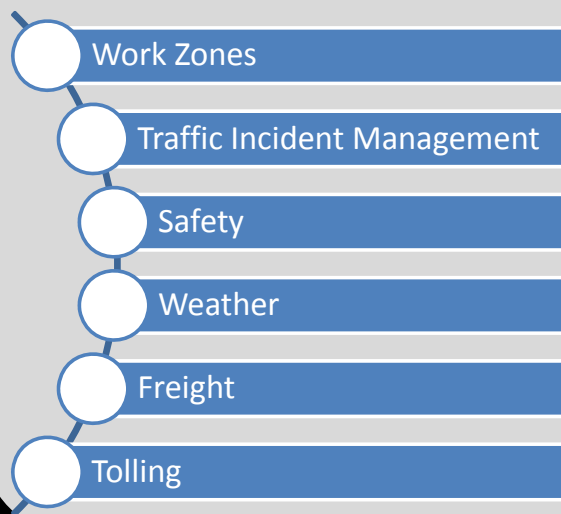
ITS DEVICE EXPANSION

Device	Locations	Existing	Construction	Planned
Dynamic Message Signs (DMS)	<ul style="list-style-type: none"> Interchanges – Located on approach roads to PTC interchanges Tunnels – Located prior to entering tunnels 	90	64	61
CCTV	<ul style="list-style-type: none"> Interchanges Urban Areas –every mile where fiber is present Tunnels and Bridges High Crash Locations Mobile Applications –mobile CCTV and UAV 	65	11	11
RWIS	As needed and per 2007 PennDOT RWIS Study	22	1	1

- ITS Western Extension Needs Study
- ITS Gaps Study - Crash Cluster and Weather Needs
- Truck Parking System
- Tunnel Traffic Management Systems

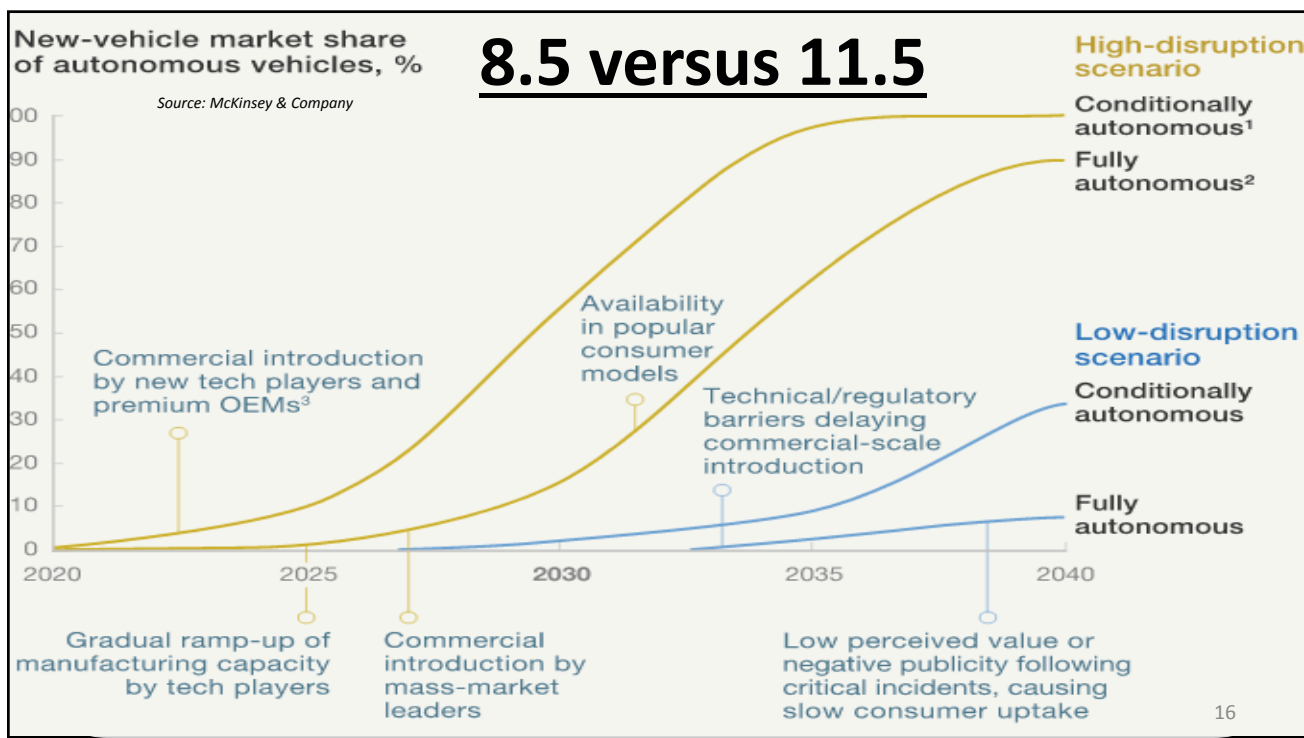


CONNECTED AND AUTOMATED VEHICLES



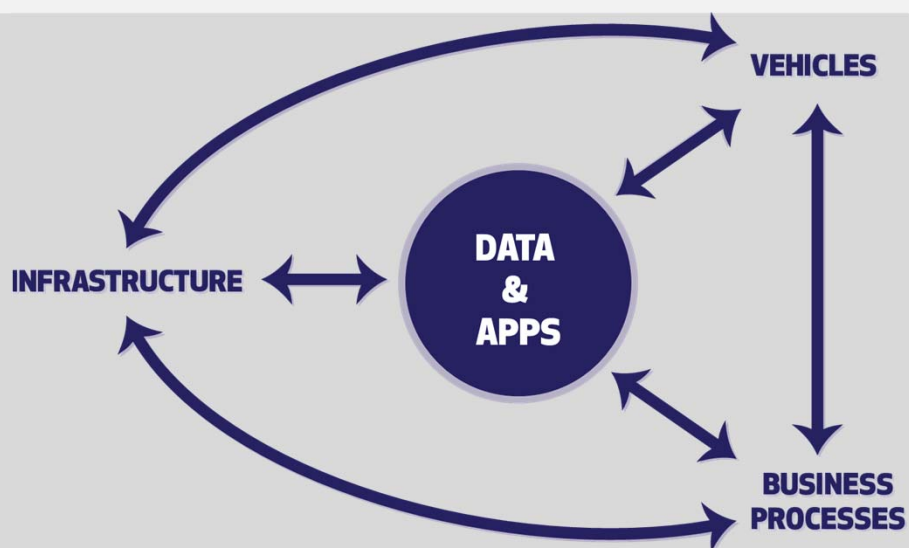
- PTC CAV Roadmap – Pilot and Phase 1
- PennDOT CV/AV Strategic Plan
- Smart Belt Coalition

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CONNECTED AND AUTOMATED VEHICLES



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Broadband



ALTERNATIVES CONSIDERED

- Lease Bandwidth
 - Ease of implementation; risks transferred to private sector
 - High cost; no control over future increases
 - Limited flexibility for future applications
- Conventional Procurement
 - Exclusive ownership and control
 - High capital costs
 - High operational costs
 - Deferral of core business capital projects
 - Not a core business function
 - Lack of resources/expertise to operate and maintain fiber optic network and market excess capacity



KEY OBJECTIVES

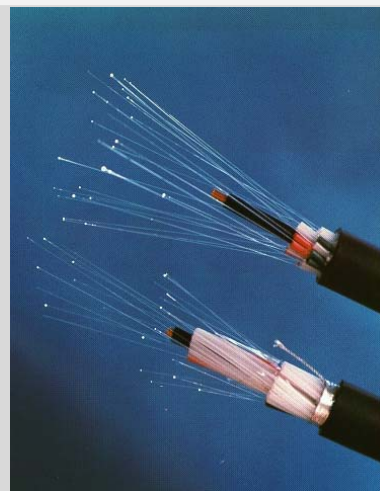
- O&M savings by moving data from towers to fiber
- Address long-term bandwidth needs (capacity)
- Provide maximum flexibility for unforeseen high-bandwidth deployments (network accessibility)
- Capitalize on value of ROW to private sector
- Project affordability through a balanced P3

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BROADBAND FIBER OPTIC NETWORK

- Public-Private Partnership (P3)
- Fiber – minimum 288 strands for PTC
- Spare conduits for future use
- Highly accessible network
 - 100+ demarcation sites
 - Distribution boxes every 1,200'
- Fiber operations and maintenance by development entity
- 35-year term P3 agreement



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BANDWIDTH NEEDS

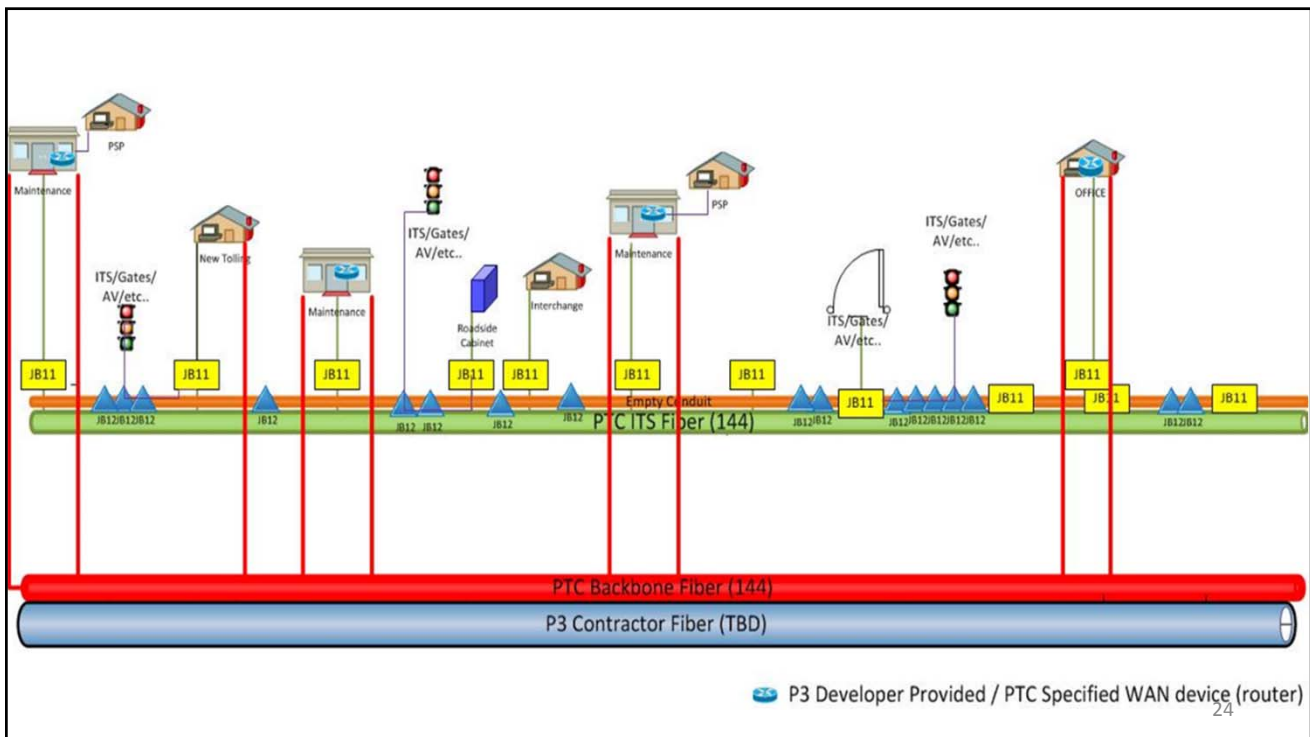
Known

Educated
Guess

SWAG



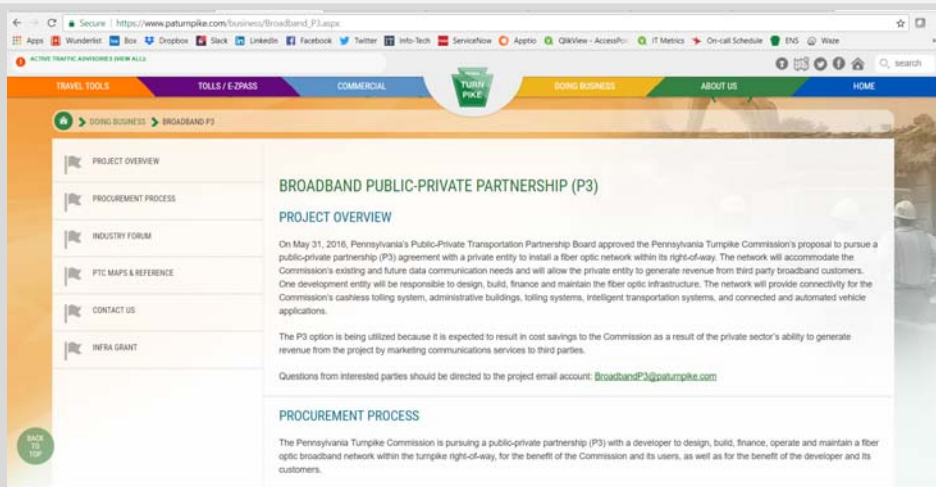
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PROCUREMENT DETAILS

- Six teams responded to the RFQ
- Four teams have been shortlisted



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PROCUREMENT TIMELINE

	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
RFP Phase																								
Design & Permitting																								
Construction																								

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THANK YOU!



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