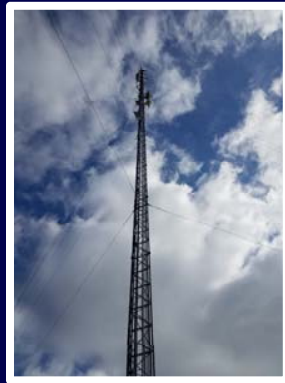


VIPER and FirstNet Are Vital for Public Safety Interoperability, but VIPER Requires Upgrades



A presentation to the Joint Legislative
Program Evaluation Oversight Committee

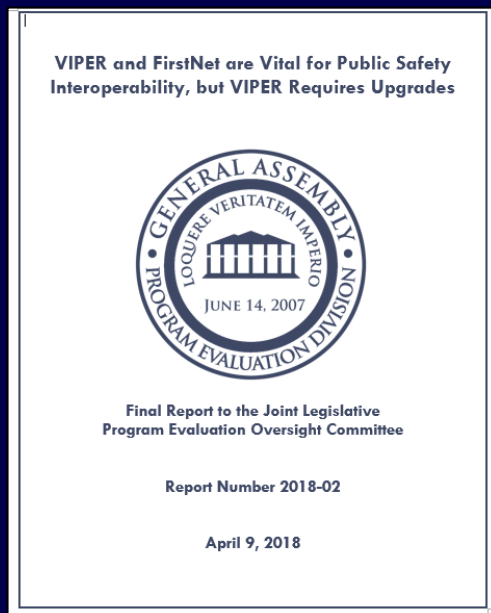
April 9, 2018

Carol Shaw, Principal Program Evaluator

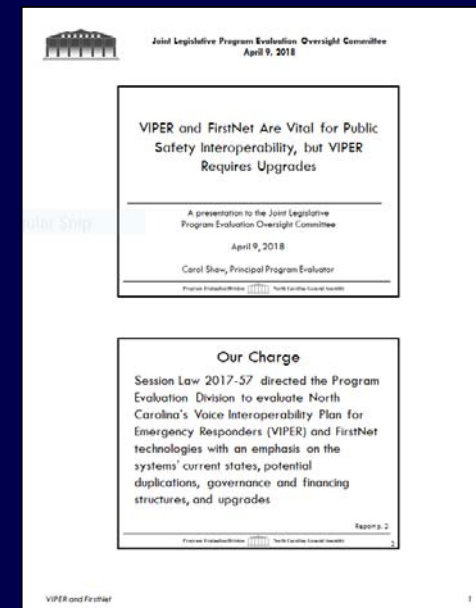


Handouts

The Full Report



Today's Slides



Our Charge

Session Law 2017-57 directed the Program Evaluation Division to evaluate North Carolina's Voice Interoperability Plan for Emergency Responders (VIPER) and FirstNet technologies with an emphasis on the systems' current states, potential duplications, governance and financing structures, and upgrades

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Overview: Findings

1. No duplication exists between VIPER and FirstNet's major functions and services
2. NC's Statewide Interoperability Executive Committee monitors interoperable communications issues and supports VIPER and FirstNet



Overview: Findings

3. VIPER provides statewide interoperability to local, state, and federal entities in NC, and stakeholders perceive it to be a reliable system
4. VIPER is supported by equipment purchases and in-kind contributions from local agencies; charging user fees could reduce participation and diminish statewide interoperability
5. Failure to upgrade VIPER's base stations and related software will adversely affect VIPER's continued reliability and interoperability



Overview: Recommendations

The General Assembly should

1. Direct DPS to increase VIPER outreach efforts to improve engagement of VIPER stakeholders
2. Direct DPS to determine the value of in-kind contributions to the VIPER system
3. Consider appropriating funds to upgrade VIPER base stations and establish routine software updates



Background



What Is Interoperability?

“...an essential communications link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information...”

Federal Communications Commission

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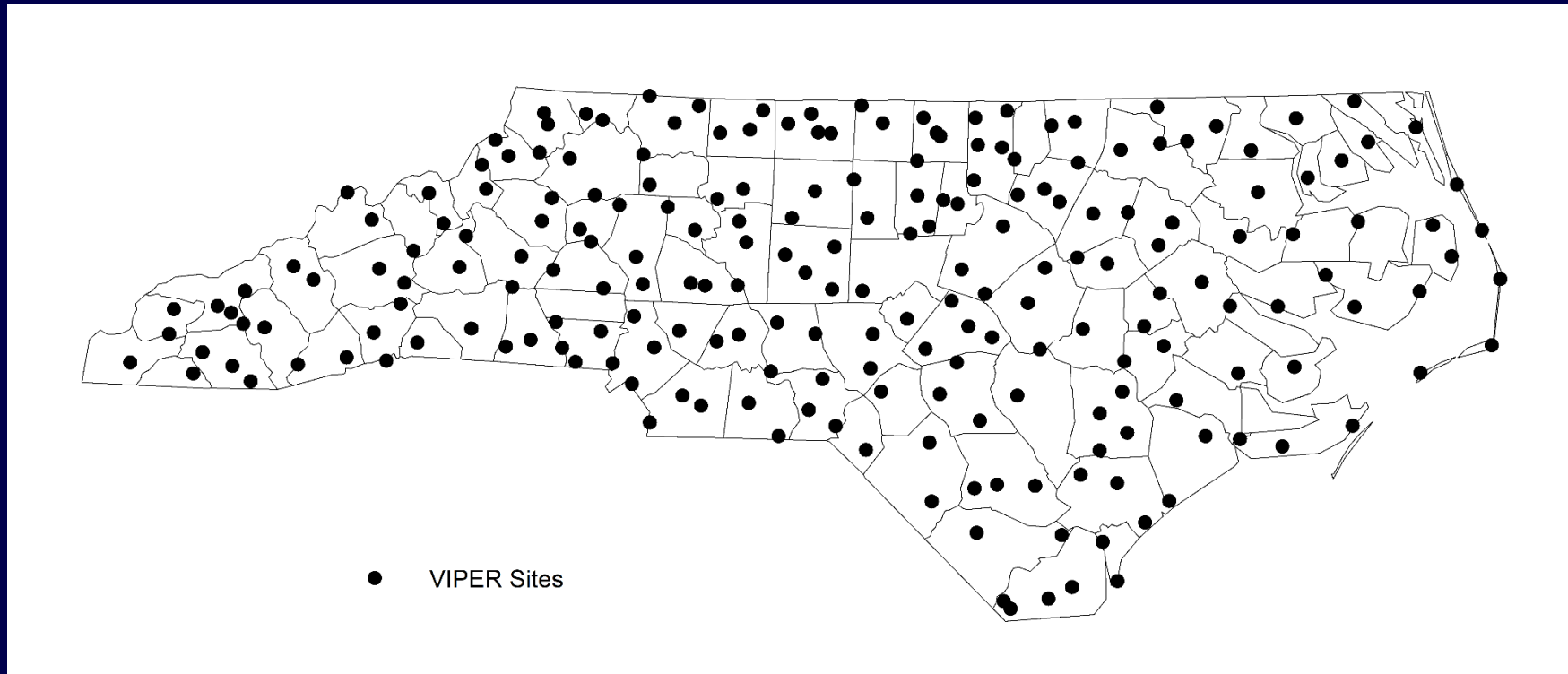
NC Voice Interoperability Plan for Emergency Responders (VIPER)

- **VIPER** is a land mobile radio system that allows users to push a button and instantly communicate to other radios in pre-arranged talk groups
- Managed by the State Highway Patrol
- \$242.5 million in state, federal, and local funding through Fiscal Year 2016–17
- 90% of VIPER infrastructure is built and operational

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Planned VIPER Network as of June 30, 2018



The State Highway Patrol plans to complete 100% of VIPER Infrastructure by the end of Fiscal Year 2020–21

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FirstNet

- **FirstNet** is a nationwide interoperable cellular broadband network offering first responders higher priority when transferring data and preemption capabilities in emergencies
- Services provided by AT&T under contract with the United States Department of Commerce
- NC opted into FirstNet in December 2017, which means program responsibility and cost will be borne by federal government and AT&T

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Findings



Finding 1

No duplication exists between VIPER and FirstNet's major functions and services

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Similarities between VIPER and FirstNet

- Provide interoperable communications for federal, state, and local emergency first responders
- First responders must purchase compatible equipment to use either system
- Participation is voluntary and not mandated

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Differences between VIPER and FirstNet

Administration	VIPER	FirstNet
Oversight	State Highway Patrol, DPS	<ul style="list-style-type: none"> • U.S. Department of Commerce • N.C. DIT
Management	State Highway Patrol, DPS	AT&T
Vendor	Motorola	AT&T
Funding sources	<ul style="list-style-type: none"> • Federal grants • State appropriations • In-kind contributions from local government 	<ul style="list-style-type: none"> • Federal funds • User fees • Commercialization of unused capacity
Subscription fees	None	Fees set by AT&T

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Differences between VIPER and FirstNet

	VIPER	FirstNet
Function	Push-to-talk mission critical voice communication	High speed data transfer
Equipment	Land mobile radios	Devices with data transfer capabilities including cell phones, tablets, and laptops
Infrastructure	A closed system utilizing a trunked radio system operated by <u>State Highway Patrol</u>	An open system utilizing the cellular broadband network operated by <u>AT&T</u>

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FirstNet Not Designed to Replace or Duplicate Land Mobile Radio Systems

Firefighters in full gear rush into a burning building with low visibility. The ability to quickly and easily speak to those outside at the push of a button is critical, so a durable radio used on the VIPER system is the safest option.

Outside, firefighters with mobile devices served by FirstNet are able to download blueprints and other structural information about the building. Information can be quickly communicated through voice via VIPER to firefighters inside



Complements the mission critical push-to-talk functionality of VIPER



Finding 2

NC's Statewide Interoperability Executive Committee monitors interoperable communications issues in North Carolina and supports both VIPER and FirstNet

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Statewide Interoperability Executive Committee Responsibilities

- Advise NC Emergency Response Commission on interoperable communications issues
- Make recommendations regarding state public safety communications policies and procedures
- Improve flow of information between agencies to reduce communications gaps
- Develop Statewide Communications Interoperability Plan

**Both VIPER and FirstNet have representatives on the
committee**

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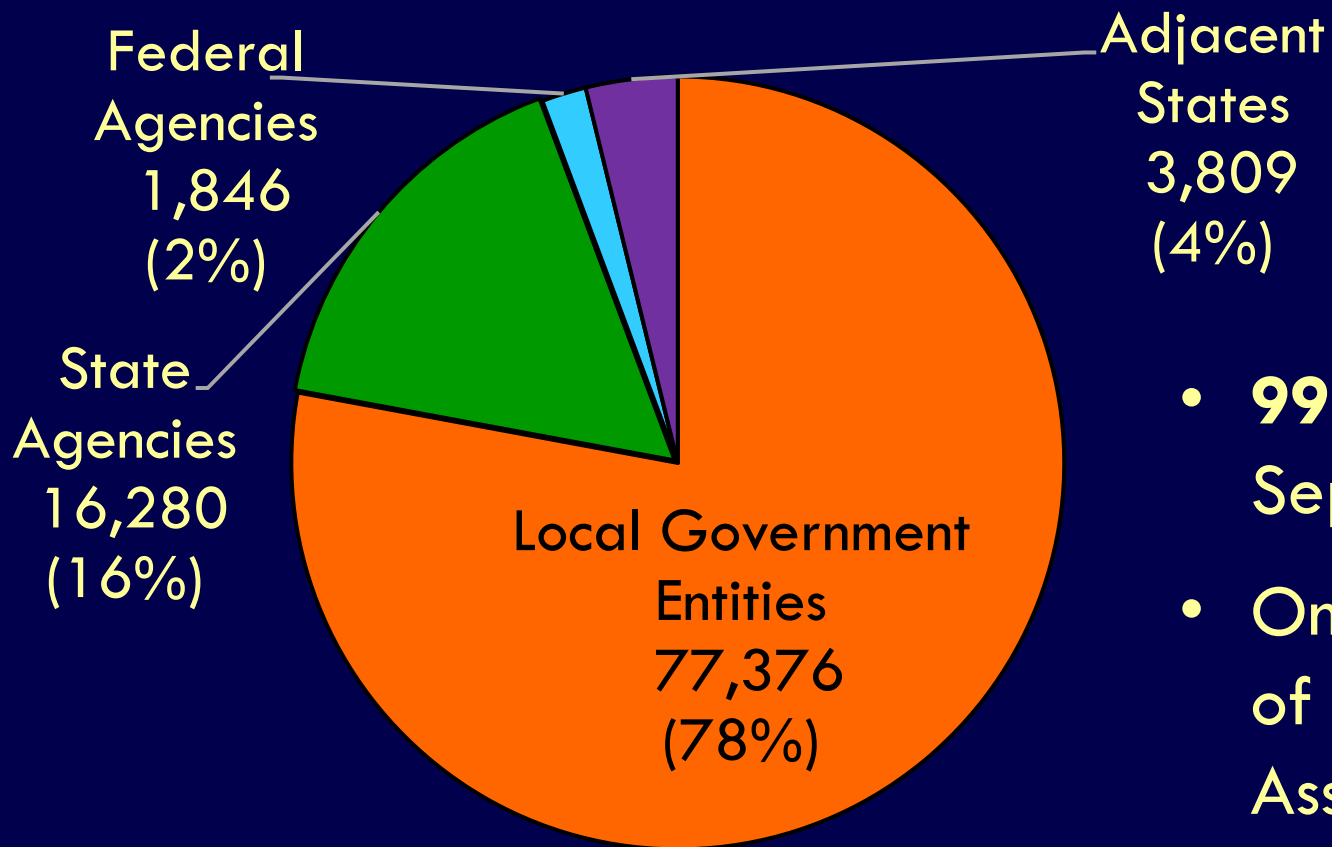
Finding 3

VIPER provides statewide interoperability to local, state, and federal entities in North Carolina, and stakeholders perceive it to be a reliable system

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Most VIPER IDs Are Distributed to NC Local Government Entities



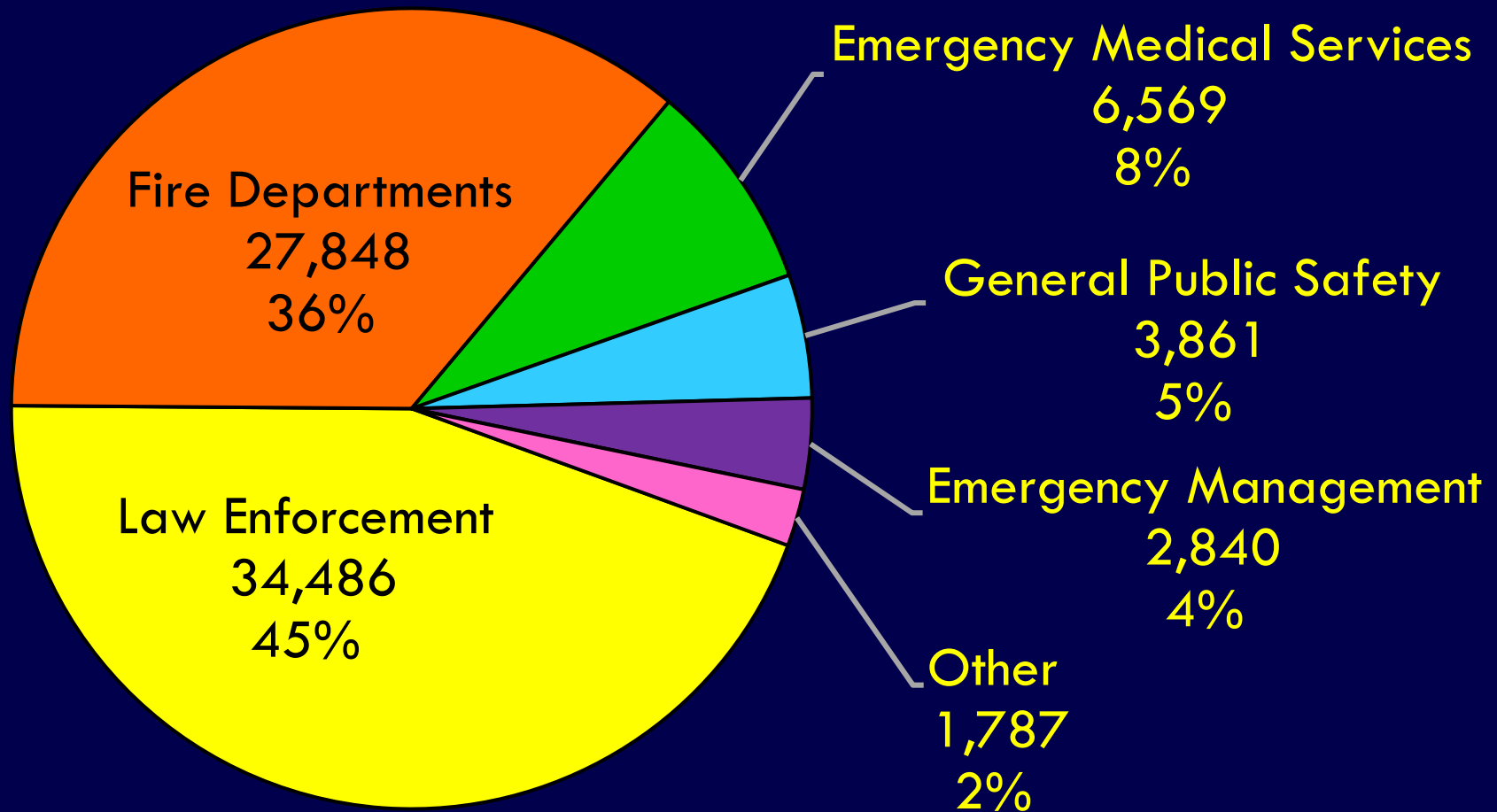
- **99,311** IDs as of September 2017
- Only **5,227 (5.3%)** of VIPER IDs Assigned to State Highway Patrol

Source: Program Evaluation Division based on information from State Highway Patrol.

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Most Local Government VIPER IDs Assigned to Law Enforcement and Fire Departments



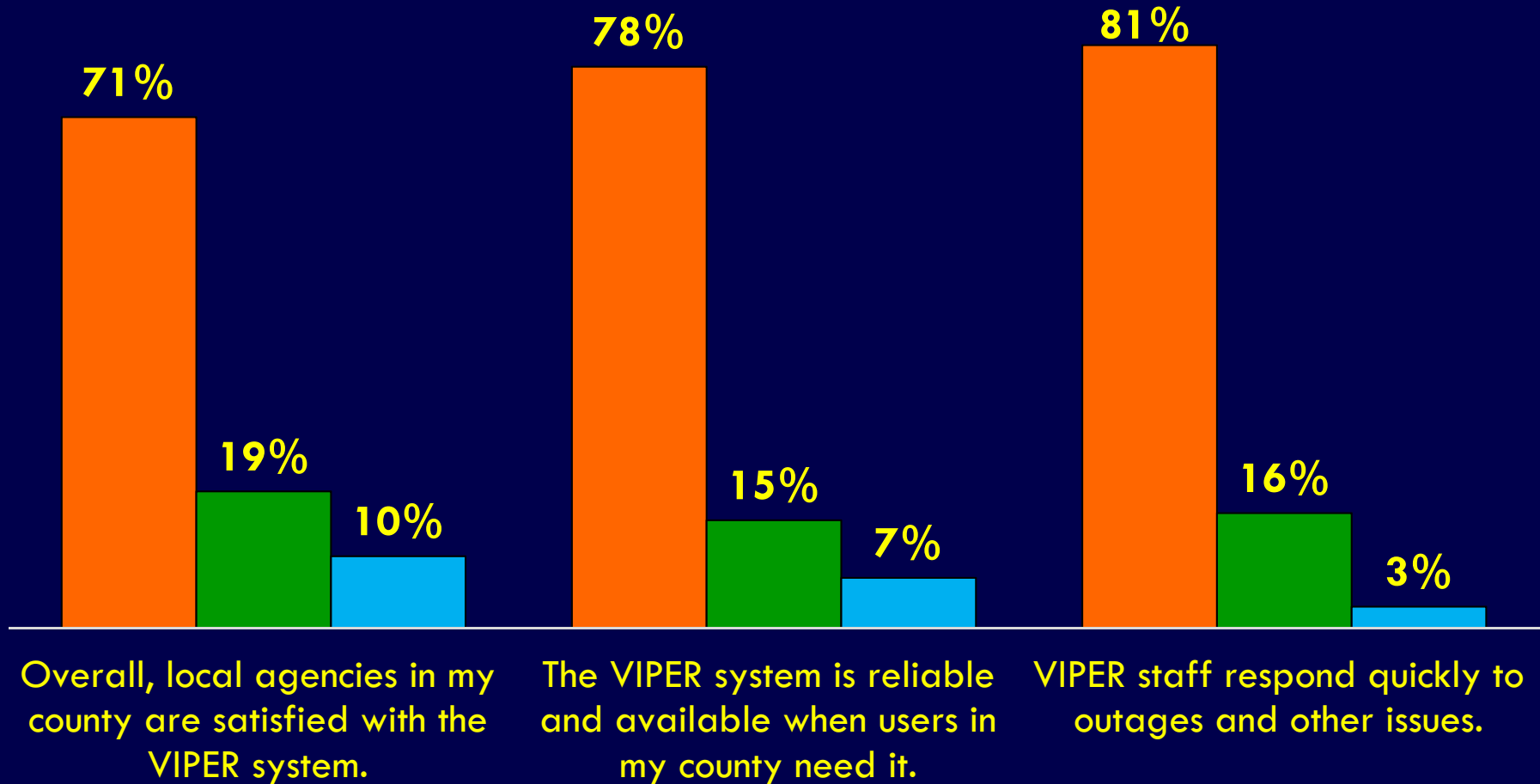
Source: Program Evaluation Division based on survey of county points of contacts.

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Most Points of Contact Perceive Satisfaction with the VIPER System

■ Strongly Agree or Agree ■ Neither Agree nor Disagree ■ Disagree or Strongly Disagree



Associations Representing VIPER Users Suggest Improving Stakeholder Input

- State Highway Patrol does not routinely seek out stakeholder input through surveys or other methods
- Representatives highlighted differences in geography and job responsibilities faced by VIPER users
- Suggested the creation of regional groups could allow for better communication with State Highway Patrol

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Finding 4

VIPER is supported by equipment purchases and in-kind contributions from local agencies; charging user fees could reduce participation in the network and diminish statewide interoperability

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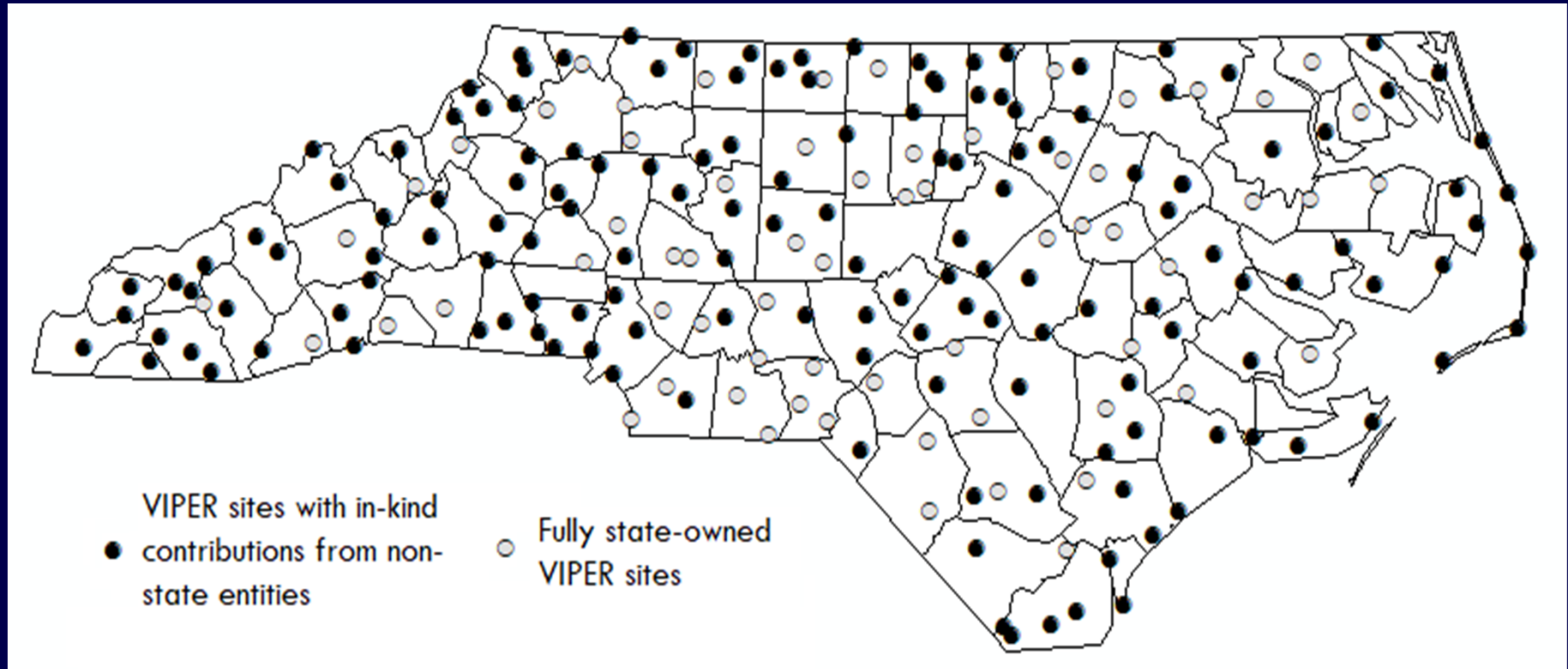
VIPER Relies on Partnerships and In-Kind Contributions from Local Governments

- Non-state entities contribute funding, land, and tower space for VIPER
- The State Highway Patrol does not know the overall value of in-kind contributions
- VIPER staff estimated the contribution for five sites at \$3.4 million

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Approximately 70% of VIPER Sites Receive In-Kind Contributions from Non-State Entities



As of Fiscal Year 2017–18, only 65 of VIPER sites are fully state-owned

Source: Program Evaluation Division based on information from State Highway Patrol.

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Charging User Fees Could Reduce Participation and Diminish Statewide Interoperability

- VIPER users have never paid fees to access system since it was established in 2004
- VIPER users must purchase compatible radios to access the system
- First responder association representatives expressed concern about fees
 - Financially prohibitive
 - May result in users leaving system, leading to a reduction in statewide interoperability

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Finding 5

Failure to upgrade VIPER's base stations and related software will adversely affect VIPER's continued reliability and interoperability

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VIPER's Functionality and Reliability Will Begin to Deteriorate Without Upgrades

Upgrade Description	Funding
GTR Base Stations. Motorola will cease support of current base stations in December 2018	\$28,500,530 NR
Service Upgrade Assurance Catch-Up. The software license is four years old, and Motorola does not provide support for software that is more than four years behind its current release	\$ 5,000,000 NR
Service Upgrade Assurance Updates. Motorola provides software updates under a long-term maintenance contract, and recurring funding is needed to support this requirement (Assumes a 10% discount based on a 10-year contract with Motorola)	\$ 2,250,000 R
MOSCAD Security Monitoring. Security monitoring must be upgraded for the GTR base stations	\$ 1,300,000 NR

**Upgrades Will Cost \$37.1 Million
(\$34.8 million nonrecurring and \$2.3 million recurring)**



Diverting Site Construction Funding Would Delay Completion of the VIPER Network

- \$7 million appropriation for site construction will support building the 14 remaining VIPER sites by end of Fiscal Year 2020–21
- Site construction funding will be used for microwave equipment replacement over four years starting in Fiscal Year 2020–21
- Allocating site construction funding towards base station and software upgrades would delay completion of the VIPER network and the microwave radio equipment upgrades

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Recommendations



Recommendation 1

The General Assembly should direct DPS to increase its VIPER outreach efforts to improve the engagement of VIPER stakeholders

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Recommendation 2

The General Assembly should direct DPS to determine the value of in-kind contributions provided to the VIPER system

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Recommendation 3

The General Assembly should consider appropriating funds to upgrade VIPER base stations and establish routine software updates

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State Appropriations for VIPER Upgrades Can Be Split Between Two Fiscal Years

Upgrade Description	Fiscal Year 2018–19	Fiscal Year 2019–20
GTR Base Stations	\$14,250,265 NR	\$14,250,265 NR
Service Upgrade Assurance Catch-Up	5,000,000 NR	0
MOSCAD Security Monitoring	1,300,000 NR	0
Service Upgrade Assurance Updates	2,250,000 R	2,250,000 R
Total Appropriations	\$22,800,265	\$16,500,265

Recurring appropriation for Service Upgrade Assurance updates assumes 10% discount from Motorola, which saves \$250,000 annually.



Summary: Findings

- No duplication exists between VIPER and FirstNet
- VIPER is perceived to be a reliable system by local, state and federal entities in NC
- VIPER is supported by in-kind contributions from local agencies
- Charging user fees could reduce participation and diminish statewide interoperability
- Failure to upgrade VIPER will adversely affect system reliability and interoperability



Summary: Recommendations

The General Assembly should

- Direct DPS to increase VIPER outreach efforts to improve engagement of VIPER stakeholders
- Direct DPS to determine the value of in-kind contributions to the VIPER system
- Consider appropriating funds to upgrade VIPER base stations and establish routine software updates



Summary: Responses

The Departments of Public Safety and Information Technology reported general agreement with the findings and recommendations



Report available online at
www.ncleg.net/PED/Reports/reports.html

