

# Public safety communication system update

June 24, 2015

# Why upgrade radio system?

- Inadequate radio coverage in parts of town  
Dispatch can't talk to Police, Fire
- Replace unreliable communications links from  
Dispatch center to Swanson, Hager towers
- Replace failing, antiquated radios at Swanson  
and Hager towers. Continued maintenance.

# Approach

<b>Issue</b>	<b>Solution</b>
Coverage	Locate talk/repeat transmitter at a central high point
Communications links	<ul style="list-style-type: none"><li>• Use more reliable technology</li><li>• Own the links if feasible</li></ul>
Radios	Replace

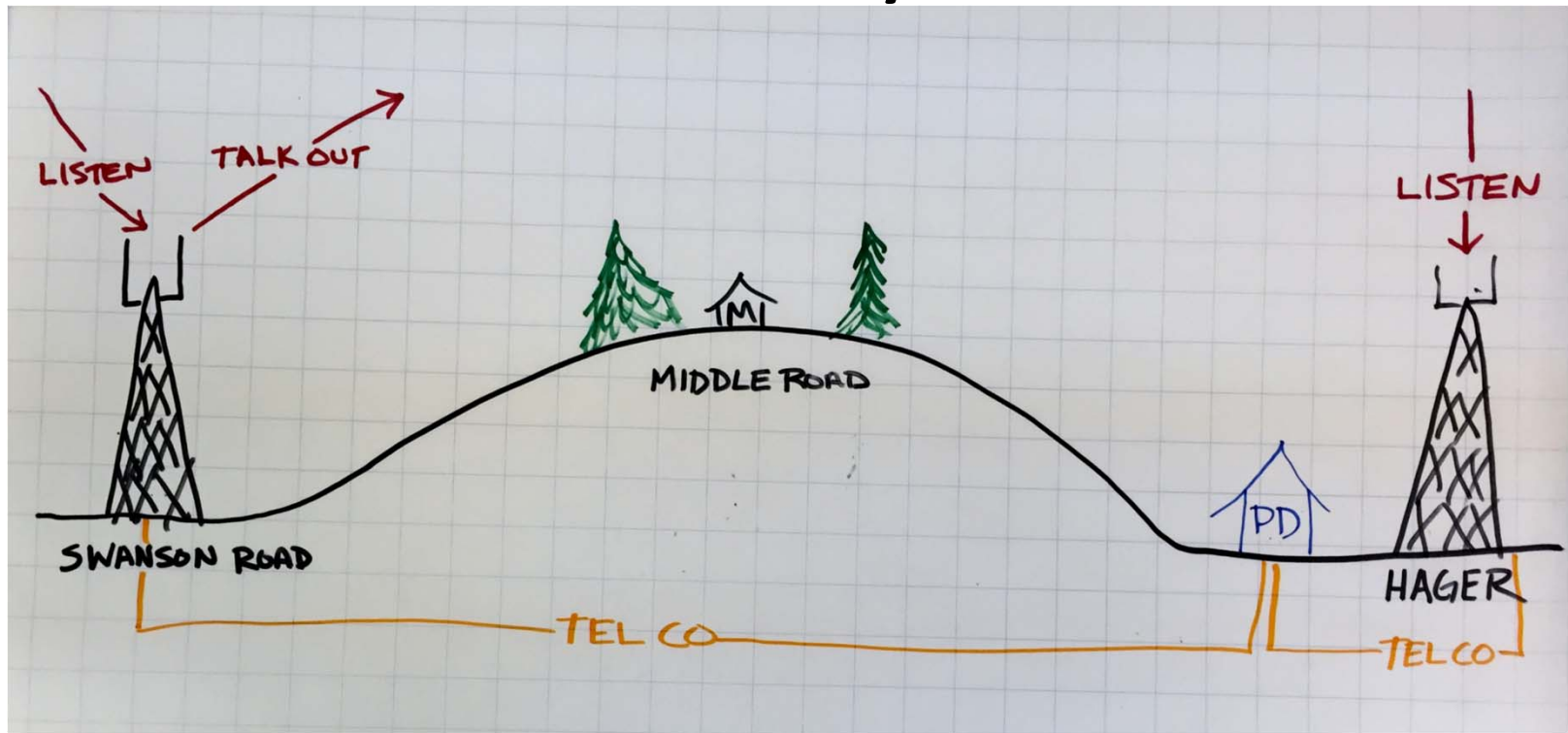
# Possible solutions

OPTION		PROS	CONS
1	<ul style="list-style-type: none"> <li>• Tall transmitter at museum</li> <li>• Microwave links</li> <li>• Keep existing field radios</li> </ul>	<ul style="list-style-type: none"> <li>• Best radio coverage</li> <li>• Lowest cost</li> <li>• Site has equipment room, power and we own it</li> </ul>	<ul style="list-style-type: none"> <li>• Aesthetics</li> </ul>
2	<ul style="list-style-type: none"> <li>• Shorter transmitter at museum</li> <li>• Fiber and T1 links</li> <li>• Digital field radios</li> </ul>	<ul style="list-style-type: none"> <li>• Coverage better than current</li> <li>• Reliable alternate links</li> <li>• We own site</li> </ul>	<ul style="list-style-type: none"> <li>• Less coverage than #1</li> <li>• Increased costs:               <ul style="list-style-type: none"> <li>- Digital field radios</li> <li>- Leased T1 (recurring)</li> <li>- Fiber installation</li> </ul> </li> </ul>

# Possible solutions (con't)

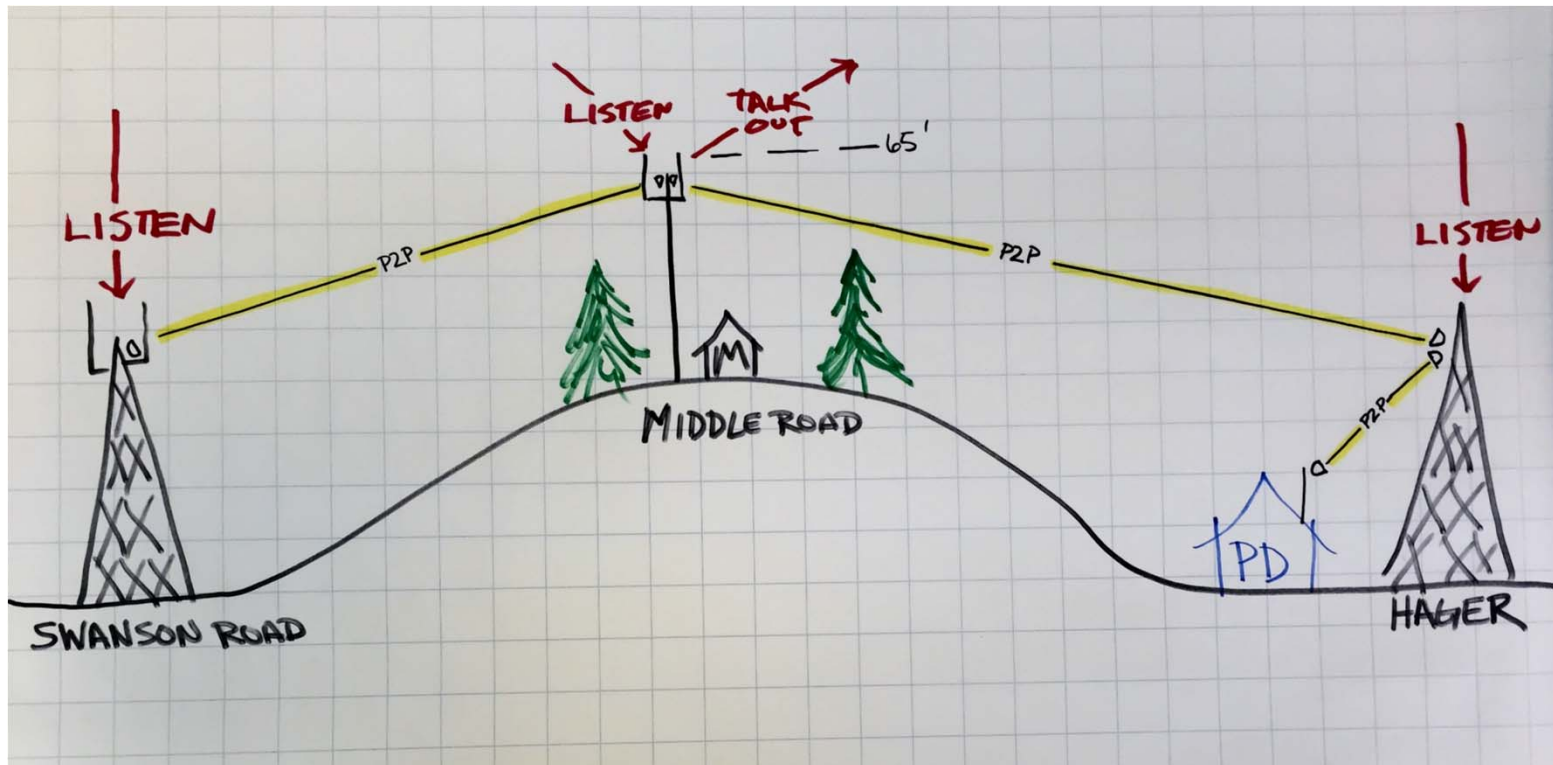
OPTION	PROS	CONS
<p>3</p> <ul style="list-style-type: none"> <li>• Use multiple existing towers</li> <li>• Microwave /TBD solution for links</li> <li>• Possibly change field radios</li> </ul>	<ul style="list-style-type: none"> <li>• No antennae in museum area</li> </ul>	<ul style="list-style-type: none"> <li>• Unknown coverage</li> <li>• Cost and access rights for co-location, equipment sheds, power, links</li> <li>• Access rights for maintenance</li> <li>• FCC: potential channel conflicts</li> <li>• Delay</li> </ul>
<p>4</p> <ul style="list-style-type: none"> <li>• Tall transmitter at TBD other high point in town, e.g.:               <ul style="list-style-type: none"> <li>➤ Flagg Hill</li> <li>➤ Liberty Field</li> <li>➤ Hill Road ridge</li> <li>➤ Patch Hill</li> </ul> </li> <li>• TBD solution for links</li> <li>• Possibly change field radios</li> </ul>	<ul style="list-style-type: none"> <li>• No antennae in museum area</li> </ul>	<ul style="list-style-type: none"> <li>• Site control: conflict with conservation use</li> <li>• Don't own private sites</li> <li>• Provisioning and cost of equipment shed, power, links</li> <li>• FCC: potential channel conflicts</li> <li>• Delay</li> </ul>

# Current system



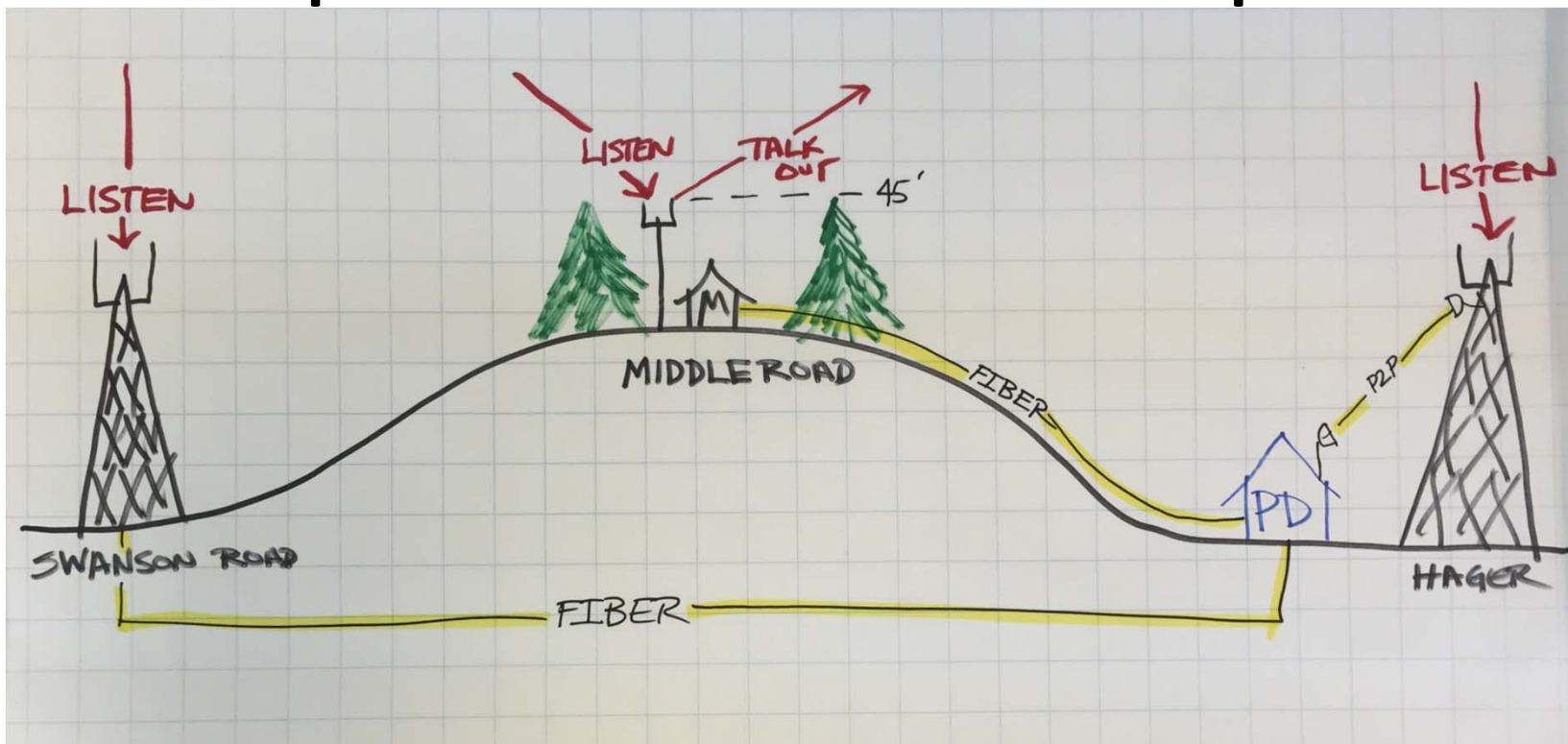
- Swanson Rd single transmitter/repeater. Listens and transmits
- Hager listens only
- Listening signals from both go to PD via analog telephone lines.
- Voter system at PD/Dispatch picks best for re-broadcast (so all hear).

# Original concept – Option 1



PROS	CONS
<ul style="list-style-type: none"> <li>• Best radio coverage</li> <li>• Lowest cost</li> <li>• Site has equipment room, power and we own it</li> </ul>	<ul style="list-style-type: none"> <li>• Aesthetics</li> </ul>

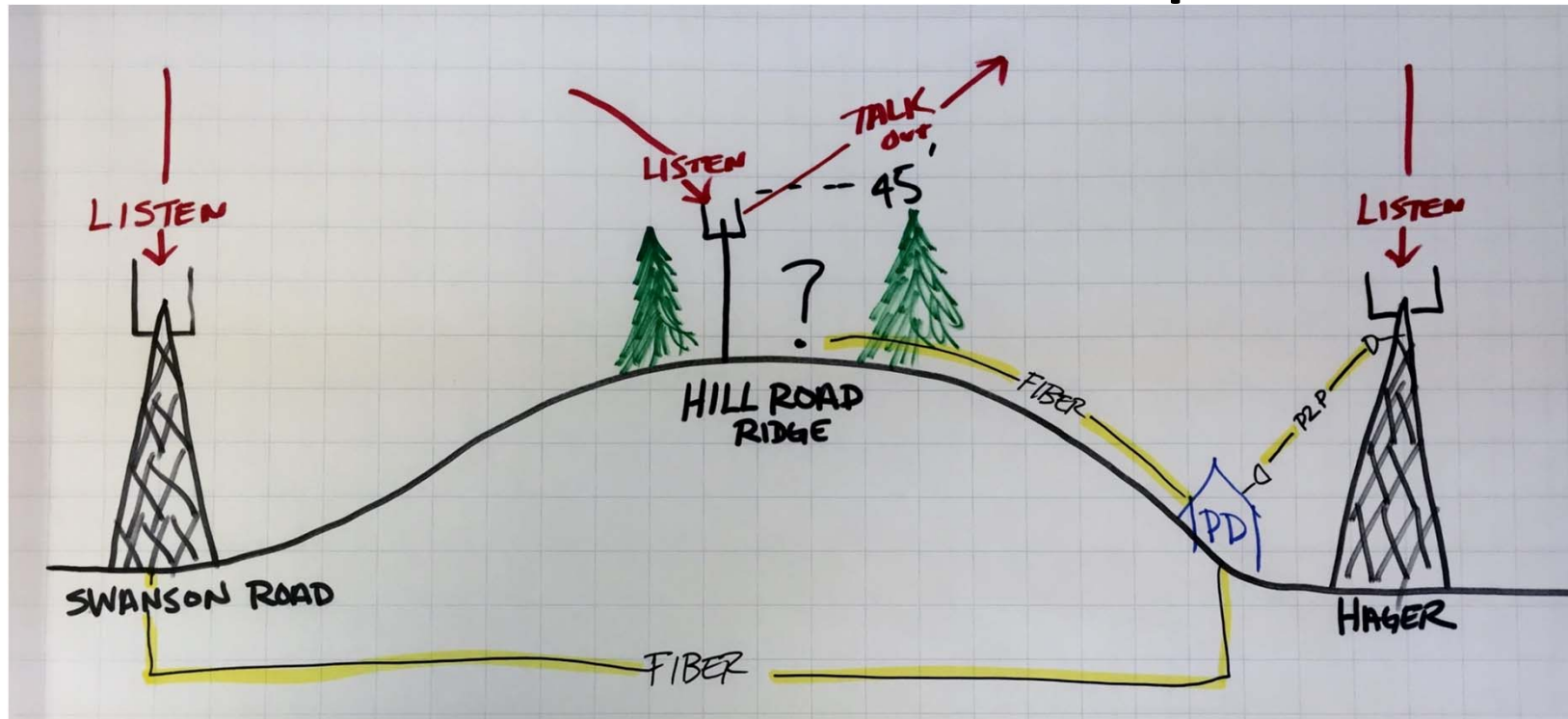
# Short pole at museum – Option 2



PROS	CONS
<ul style="list-style-type: none"> <li>• Coverage better than current</li> <li>• Reliable alternate links</li> <li>• We own site</li> </ul>	<ul style="list-style-type: none"> <li>• Less coverage than #1</li> <li>• Increased costs:                             <ul style="list-style-type: none"> <li>- Digital field radios</li> <li>- Leased T1 (recurring)</li> <li>- Fiber installation</li> </ul> </li> </ul>



# Relocation solution – Option 3



PROS	CONS
<ul style="list-style-type: none"> <li>No antennae in museum area</li> </ul>	<ul style="list-style-type: none"> <li>Site control: conflict with conservation use</li> <li>Don't own private sites</li> <li>Provisioning and cost of equipment shed, power, links</li> <li>FCC: potential channel conflicts</li> <li>Delay</li> </ul>

# Museum antenna illustration

