Appendix B

Right-of-Way Transfers and Power Options Comparison
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APPENDIX B:
Right-of-Way Transfers and Power Options Comparison

The following planning documents are included in this appendix:

- Attachment 1: PHX Sky Train Stage 2, Right-of-Way (ROW) Transfers (Preliminary Design)
- Attachment 2: Sky Train Stage II Power Options, PowerPoint Presentation, Peter Syntax, P.E., LEED AP, Kimley Horn.
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Attachment 1:

PHX Sky Train Stage 2

Right-of-Way (ROW) Transfers Exhibit

Preliminary Design
LEGEND
- Right-of-Way Transfers (Existing Phoenix Street Dept)
- Right-of-Way Transfers (Existing ADOT)
- Sky Train Alignment
- Airport Property Boundary

Sources: USDA NAIP Aerial (2015), City of Phoenix
Attachment 2:

Sky Train Stage II Power Options

PowerPoint Presentation

Peter Syntax, P.E., LEED AP, Kimley Horn
Sky Train Stage II Power Options
Phoenix Sky Harbor International Airport

Peter Syntax, P.E., LEED AP
Overview

• Current Sky Train system powered from 12.47kV switchyard near 44th Street Station
  • Peak power consumption of 2.8MW
  • Current system retains sufficient capacity for Stage II
• Proposed Stage II facilities would increase required peak power to roughly 6MW
• Evaluated 7 options and these 4 are the most feasible:
  • Option 1: West APS Substation
  • Option 2: East APS Substation
  • Option 3: Hohokam Switchyard
  • Option 4: 44th Street Existing Switchyard
Option 1: West APS Substation
Option 1: West APS Substation

**Advantages**

- Secondary power source adds redundancy to entire Sky Train system
- APS is responsible for 69kV/12.47kV substation
- APS could service future Aviation development and other customers west of I-10 from this site
- APS would share the cost or potentially absorb the full cost of power to serve Sky Train

**Disadvantages**

- Proposed 69kV/12.47kV substation site would need to be determined with City and APS
- Obtaining right-of-way along Buckeye Road could impact Sky Train schedule
- I-10 duct bank crossing would require coordination with ADOT and ACC
- Construction of a 69kV/12.47kV substation could impact Sky Train schedule
Option 2: East APS Substation
Option 2: East APS Substation

Advantages

• Secondary power source adds redundancy to entire Sky Train system

• APS is responsible for 69kV power lines

• APS could service all future Aviation development with Aviation-dedicated substation

Disadvantages

• Utilizing a single series of power poles to carry both 69kV feeders compromises reliability

• Aviation would bear the cost of the 69kV/12.47kV substation

• Construction of a 69kV/12.47kV substation could impact Sky Train schedule

• APS/City would still require another substation to meet their current needs west of I-10
Option 3: Hohokam Switchyard
Option 3: Hohokam Switchyard

Advantages

• Secondary power source adds redundancy to entire Sky Train system
• Existing duct bank along guideway could be used for power distribution to Stage II

Disadvantages

• Distance from Stage II would necessitate larger conductor sizes and may be labor intensive to pull
• SR 143 duct bank crossing would require coordination with ADOT and ACC and would be the responsibility of Aviation
• Proposed 12.47kV switchyard is near sensitive cultural lands and could impact Sky Train schedule
Option 4: 44th Street Existing Switchyard
Option 4: 44th Street Existing Switchyard

Advantages

• Utilizes existing infrastructure to power Stage II
• Aviation would not need to commit to an electrical system to power future west-side facilities at this time
• Existing duct bank along guideway could be used for power distribution to Stage II
• Least costly option and would not require APS coordination

Disadvantages

• Does not provide power redundancy to Sky Train system (could be solved with microgrid system)
• Distance from Stage II would necessitate larger conductor sizes and may be labor intensive to pull
## ROM Estimate

<table>
<thead>
<tr>
<th></th>
<th>Option 1: West APS Substation</th>
<th>Option 2: East APS Substation</th>
<th>Option 3: Hohokam Switchyard</th>
<th>Option 4: 44th Street Existing Switchyard</th>
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<td><strong>APS Cost</strong></td>
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<td><strong>Total Aviation Cost</strong></td>
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<td>$10,607,551</td>
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* Estimated cost based on assumed shared expenses. Actual may be negotiated.
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* With the addition of a microgrid system. Cost share to be determined with APS, likely Aviation cost is approximately $2.5M.