Improving access
(or how to get something from nothing)

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We are Europe’s premier railroad

Source: European Commission Rail Study, March 2013
Agenda

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The case for change
The case for change

Targeting a State of Good Repair

Making the case: emerging defects

Making the case: reducing ‘backlog’

Delivering renewals

RED

ZERO

Keep up with ‘emerging’ work

Reducing the no of speed restrictions

Aggregate passenger delay
1,150 hrs / day

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Improving access (or how to get something from nothing)
Experience from the United Kingdom
Driving Productivity and Safety

On-time equipment arrival

Accessing the RoW quickly: Technology solutions

Accessing the RoW quickly: Process and rules solutions

Improving access (or how to get something from nothing)
Original protection arrangements

17 separate phonecalls – just for the ballast cleaner
New protection arrangements

SWL2 is competent as E/S for train movements

Task leaders competent as COSS

Multiple task leaders

4 separate phonecalls – for the ballast cleaner

Note: proposal is to carry out works in a Protection Zone – whereas they were previously carried out in a T3 possession
Possession v Protection Zone

Time taken to gain access

- Possessions
- Recent PZ
- Early stage Protection Zone

- Time (mins)
- Possession mean
- Possession LCL
- Possession UCL
- PZ mean (initial)
- PZ LCL (initial)
- PZ UCL (initial)
- PZ mean (latest)
- PZ LCL (latest)
- PZ UCL (latest)

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Improving access (or how to get something from nothing)
The opportunities
Increasing access from 3h36’ to 5h12’

The opportunity: streamlining the process

Use time between last and first train (locally).
Increase from 3h 36’ to 5h 12’

The opportunity: changing the process

Extend working time by 1h 30’

The opportunity: changing what we take

The opportunity: changing the protection

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Improving access (or how to get something from nothing)
The safety case and trial strategy
MBTA is changing

From
Accessing RoW only when trains have stopped running
Operating with no Hirail on the line
Delivering work from 130am-5am
Delivering a modest level of renewals

To
Working with the adjacent line open
Operating with Hirail vehicles on the adjacent line
Delivering work from 10pm-5am
Delivering a large renewal program

The consequential increase in risk needs to be controlled.
Increasing access from 3h36’ to 5h12’

Agreed the protection

Assessed and mitigated the risk

Defined the trial strategy

Trialled it…
The results
## Trial success criteria and results

<table>
<thead>
<tr>
<th>Trial stage</th>
<th>Description</th>
<th>Aim</th>
<th>Success criteria</th>
<th>Results</th>
<th>Success?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No exposure</td>
<td>To confirm the 3rd rail turned off correctly.</td>
<td>No safety or operational incidents.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Protection only</td>
<td>To confirm that protection arrangements can be safely set up.</td>
<td>No safety or operational incidents.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>People only</td>
<td>To confirm safety of personnel in protected area.</td>
<td>No safety or operational incidents.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>People &amp; Hi-rail (on rails)</td>
<td>To confirm safety of personnel and hi-rail in protected area.</td>
<td>No safety or operational incidents.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>People &amp; Hi-rail (at truck pad)</td>
<td>To confirm safety of personnel and hi-rail in protected area.</td>
<td>No safety or operational incidents.</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
The simplified results (Proof of concept - Dec 2017)

Operational railroad

Last train

12:00

1:00

2:00

3:00

Hi-rail access

All trains clear the line and the power is turned off

12:17

02:33

1hr 33mins earlier

Operational railroad

Train clears section and power off

Last train

Hi-rail access

12:18

01:00

Working time

2h 17min

3h 50min

Baseline

Trial

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Improving access (or how to get something from nothing)
The simplified results (Single track – Feb 2018)

Baseline:
- Operational railroad
- Hi-rail access
- Last train: 12:00
- All trains clear line and power turned off
- Working time: 2h 17min

Trial:
- Operational railroad
- Single track
- Hi-rail access?
- Set-up
- Single line operations
- Working time: 6h 20min
- 4hr 3mins earlier
- 1hr 33mins earlier
MBTA is changing

From
Delivering work from 130am-5am
Delivering a modest level of renewals

To
Delivering work from 10pm-5am
Delivering a large renewal program

To strengthen risk controls we are now rolling out *site leadership* training and *safety critical communications* training.
Then ‘live’ trials until it becomes business as usual.
Critical to success
Critical to success

Having a need

Motivated, honest leadership

Agreeing a vision

A willingness to challenge, learn and change

A measured approach to managing the risk

Considering the people, process and the technology
The simplified results

Baseline

Operational railroad

All trains clear line and power turned off

Working time 2h 17min

Trial

Operational railroad

Single line operations

Set-up

Hi-rail access

Last train

12:17

02:33

4hr 3mins earlier

1hr 33mins earlier

Hi-rail access?

10:00

10:30?

10:00

Single track

Working time 6h 20min

10:00

Hi-rail access

12:00

3:00
Thank you