CONSTRUCTION OF THE NEW NORTH HUDSON TUNNEL

MGMT 609 Final Project

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Outline

1. Project Description
2. Constraints & Assumptions
3. Project Objectives
4. Organization Structure
5. WBS
6. Milestones/Deliverables
7. Success Measures
8. Risk Management
9. Budget
10. Gantt Chart

Source: Hudson Tunnel 2017 - *Construction Methods and Activities*
http://www.hudsontunnelproject.com/documents/deis/03%20Construction%20Methods%20and%20Activities.pdf

Project Description

- To construct the New North Hudson Tunnel which connects NJ and NY
- Existing tunnel is over 100 years old. Damaged during Hurricane Sandy
- Frequent maintenance causes irregular shutdown, delays
- Stakeholders in the project are Amtrak, NJ Transit, Port Authority of New York and New Jersey, The Federal Railroad administration and the users of the tunnel
- The phase of building a new tunnel and tracks has been outsourced to a private vendor

Constraints and Assumptions

CONSTRAINTS

- Expected to complete in 7 years or less
- Estimated a total cost of $2 billion for the construction process
- Construction to begin in Spring 2018 and end in 2025. Weather conditions in mind.

ASSUMPTIONS

- Land required for construction of new tracks has been acquired and ready to use
- EIA of the new route has been completed and approvals are in place
- Blueprints of the new route will be provided at the start of the project
- Change in routes due to weather conditions/problems will add additional cost

Project Objectives

- To provide an alternative route for shutdowns, so that the service does not stop.
- To provide an additional route to alleviate high passenger traffic.
- The deliver a tunnel with already tested rails, staying within the previously defined time and budget range.

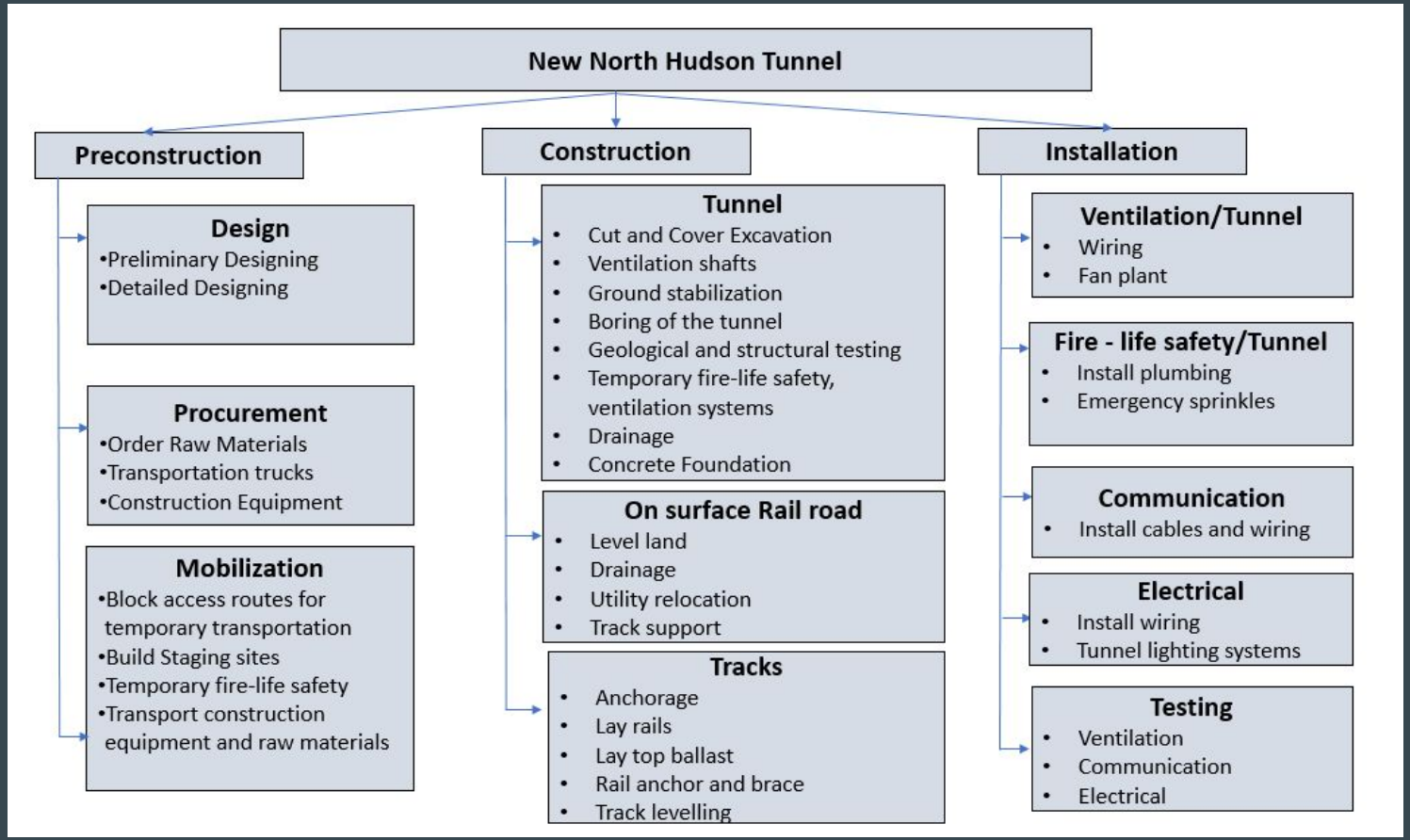
Source: http://c8.alamy.com/comp/ERX9CY/tube-train-full-of-people-on-london-underground-doors-open-ERX9CY.jpg

Organization Structure

When the project requires the integration of inputs from several functional areas and involves reasonably sophisticated technology, but does not require all the technical specialists to work for the project on a full-time basis, the matrix organization is the only satisfactory solution (Meredith & Mantel 2016).

- The project is the point of emphasis.
- The project has reasonable access to the entire reservoir of technology in all functional divisions.
- Less anxiety when the project is completed.
- Matrix organization responds flexibly to parent organization demands.
- Consistency with parent firm procedures fosters project credibility.

Work Breakdown structure



Major Milestones

- 1st Major milestone: Completion of all Construction documents(Detailed design) with approvals from all stakeholders in place
- 2nd Major milestone: Excavation and boring till midway of the tunnel
- 3rd Major milestone: Completion of all construction activities of the tunnel
- 4th Major milestone: Installation of rail tracks
- 5th Major milestone: Installation and testing of electrical, communication, ventilation and fire-life safety features inside the tunnel

Our measurement of Success

Project Efficiency:

- One dimension that will be critical to our project success is to meet our deadlines, and stay within the constraints of our project.

Benefit to the customer:

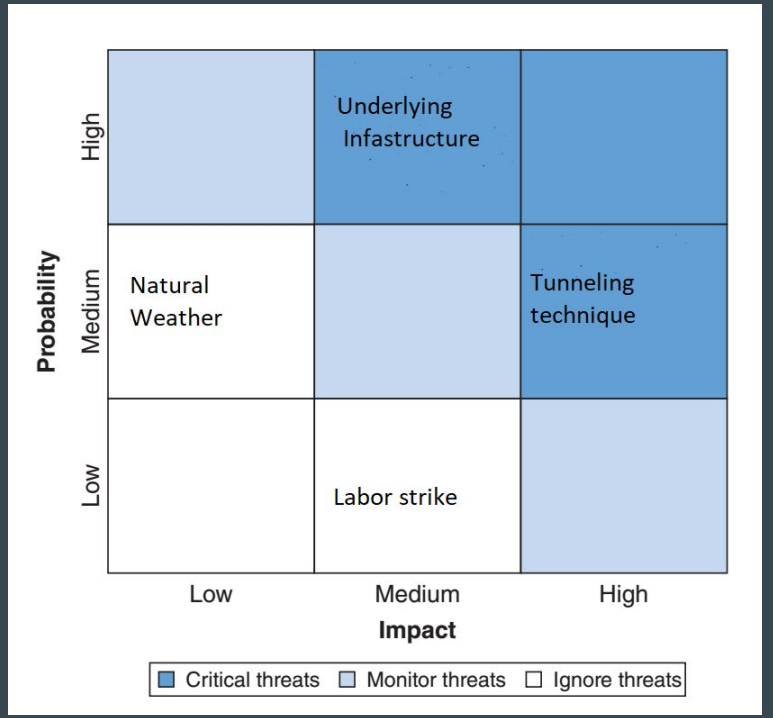
- We will measure our success using public surveys, that will be distributed about 1 year after completion. These surveys will help us quantify our results, and will help us better visualize the satisfaction of the passengers of the new tunnel, and value added from our primary objective.

Planning for the future:

- Our tunnel will be built using the latest technology that can guarantee less maintenance costs and prevent possible breakdowns in the long term.

Risk Management

- Our rail tunnel is considered to be a low-medium technology project and the risks associated in the category of construction are low.
- We have prepared to help decrease our probability of risk through our clear mention of our project plan, scope, and deliverables. Our PM will also be involved and on site, our milestones are achieved.



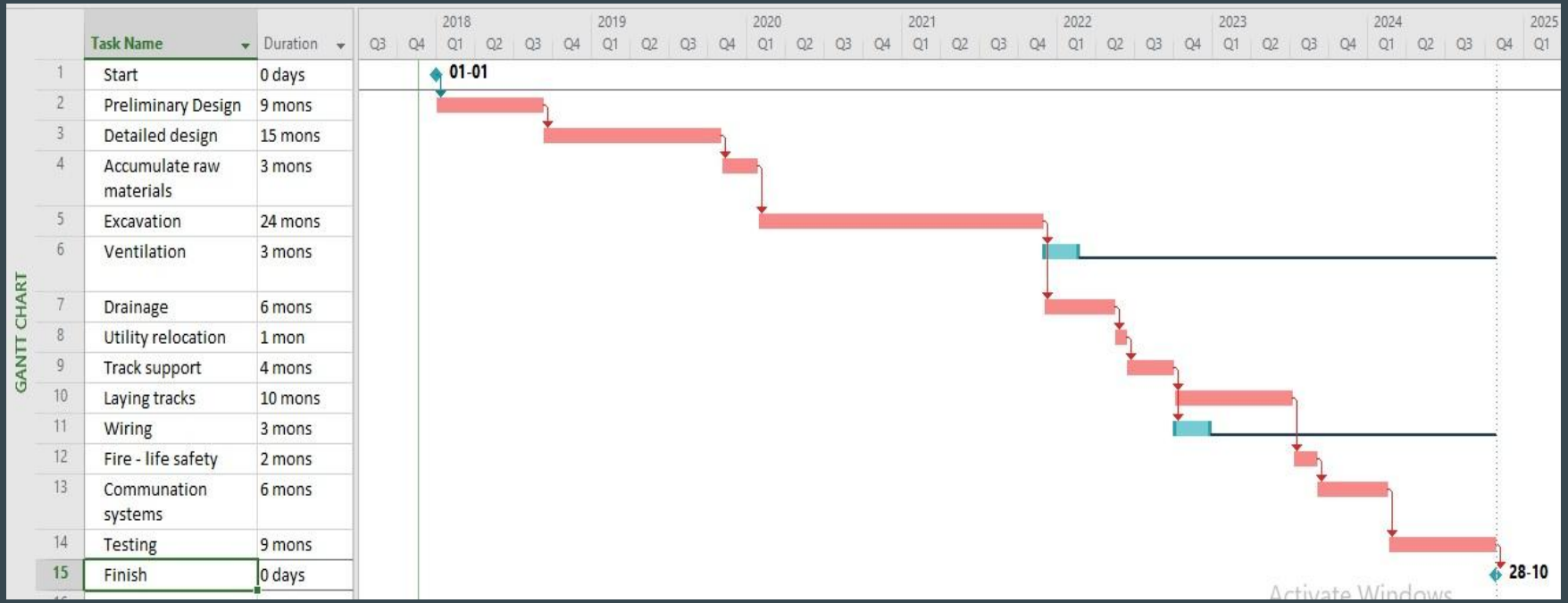
- Also, to help decrease our risk further we have reviewed the multiple mining methods, and other regulatory processes required for executing work on the tunnel.
- We will continually review the project scope and deliverables with the clientele, and have begun an assessment of our risks, with our probability-impact matrix.

Budget

1) Material Cost - $400 million
2) Labour Cost - $450 million
3) Equipment Cost (includes: machinery, tools, electronic devices etc.) - $1 billion
4) Contractor Profit - $50 million
5) Overhead Cost - $40 million
6) General and Administrative Cost - $60 million

Total - $2 billion approx.

Gantt Chart


GANTT CHART
Task Name
Duration
1 Start 0 days
2 Preliminary Design 9 mons
3 Detailed design 15 mons
4 Accumulate raw materials 3 mons
5 Excavation 24 mons
6 Ventilation 3 mons
7 Drainage 6 mons
8 Utility relocation 1 mon
9 Track support 4 mons
10 Laying tracks 10 mons
11 Wiring 3 mons
12 Fire - life safety 2 mons
13 Communation systems 6 mons
14 Testing 9 mons
15 Finish 0 days
2018
2019
2020
2021
2022
2023
2024
2025
Q1 Q2 Q3 Q4
01-01
28-10
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Jack R. Meredith, Samuel J. Mantel, Jr. and Scott M. Shafer 2015 *Project Management: A Managerial Approach,* 9th Edition

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