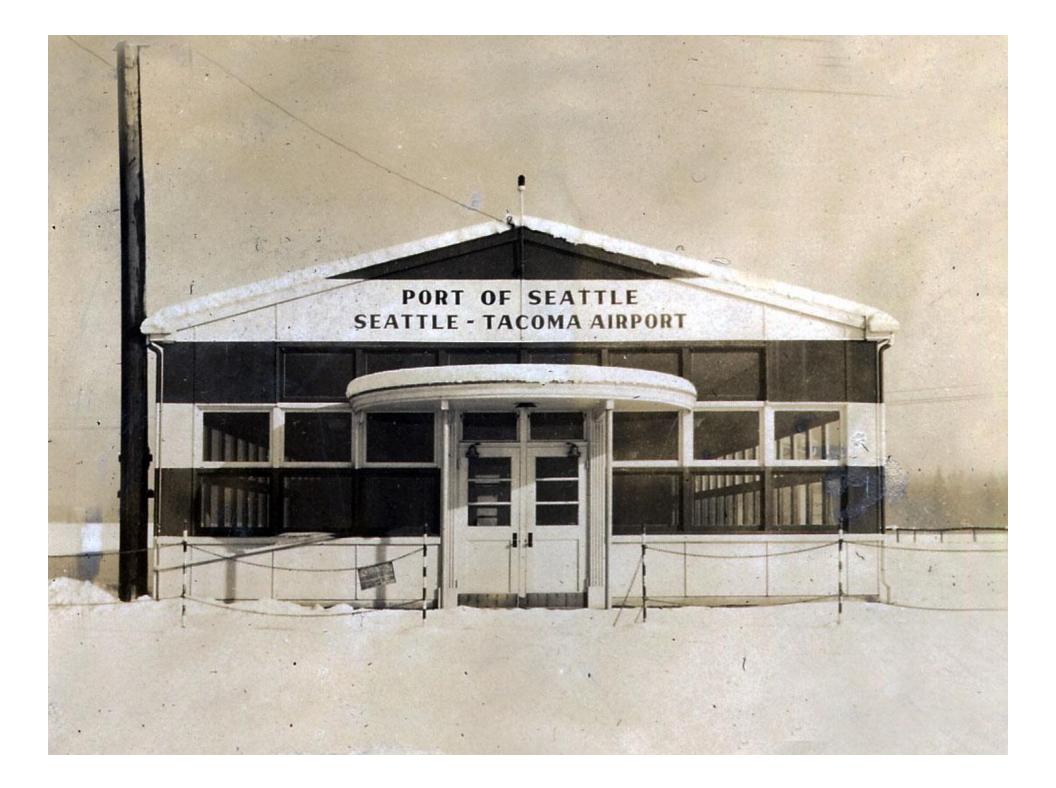


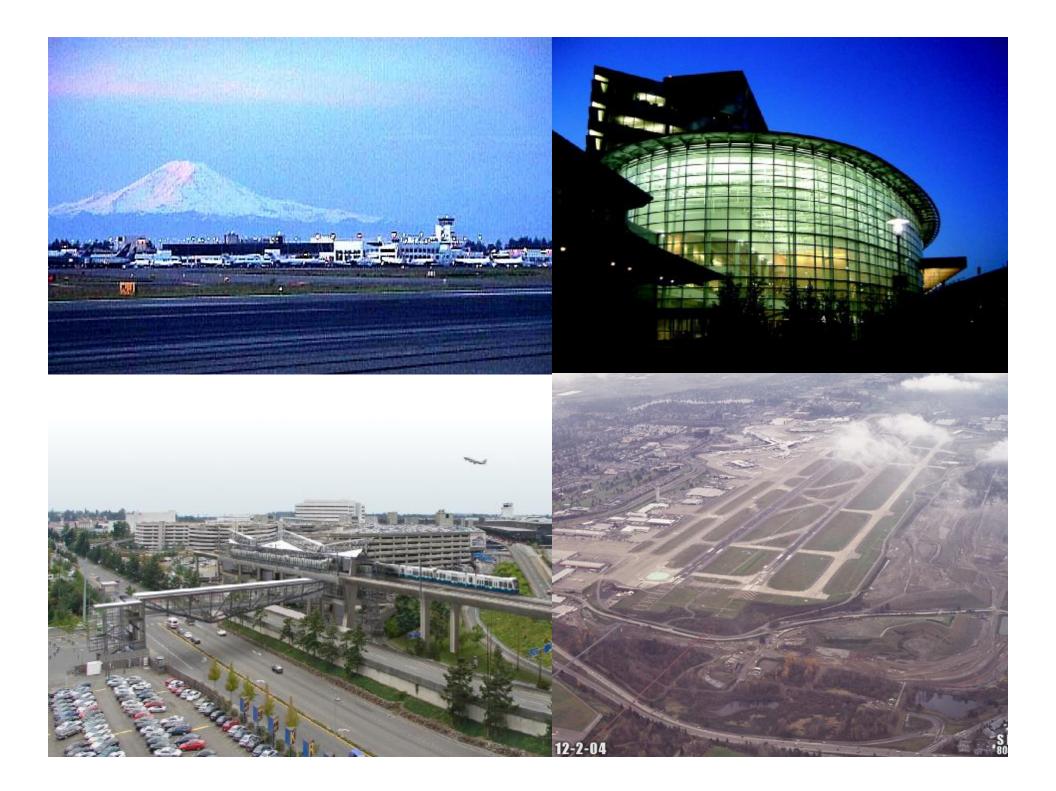
# Northwest Construction Consumer Council

Safety Challenges for Delivering Capital Construction Projects at Operating Airport and Seaports

> Alan Norris and John Burdick Port of Seattle Engineering Construction Safety Office





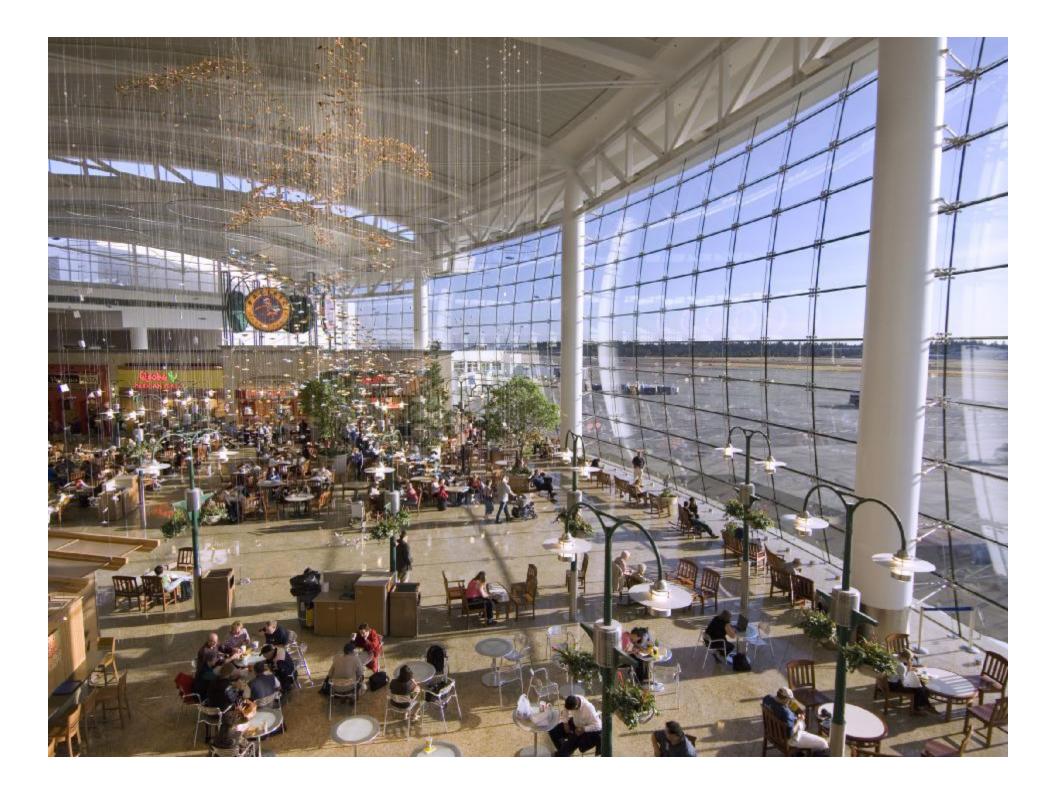




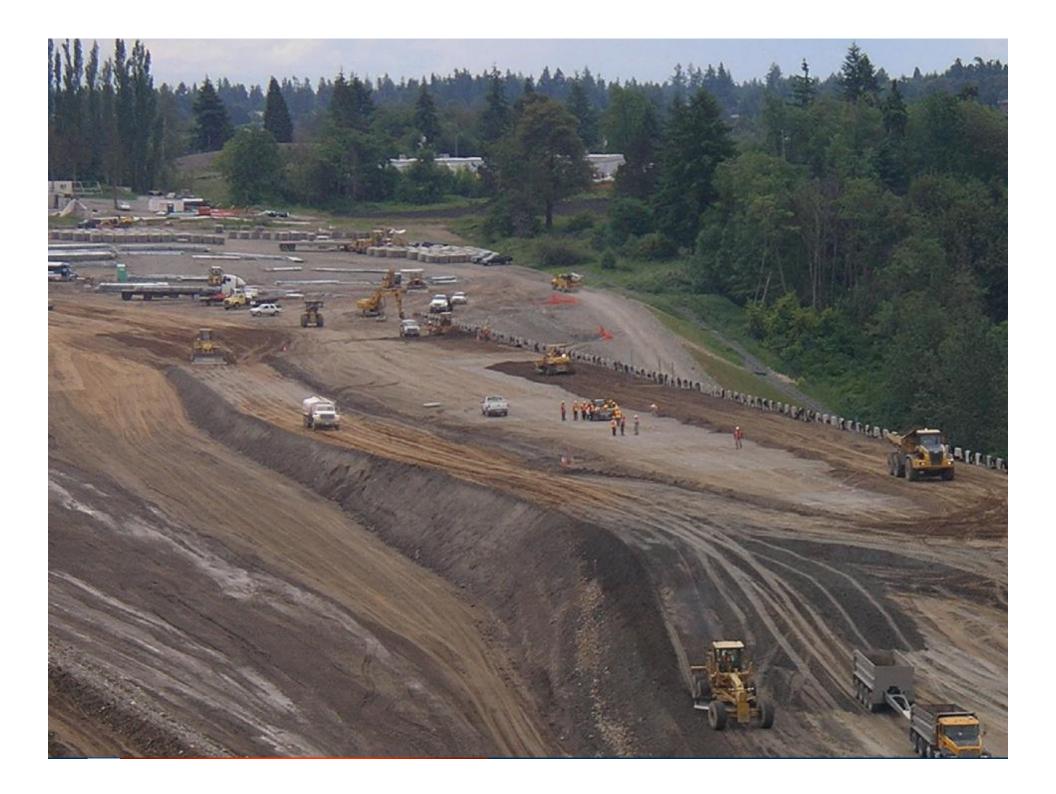




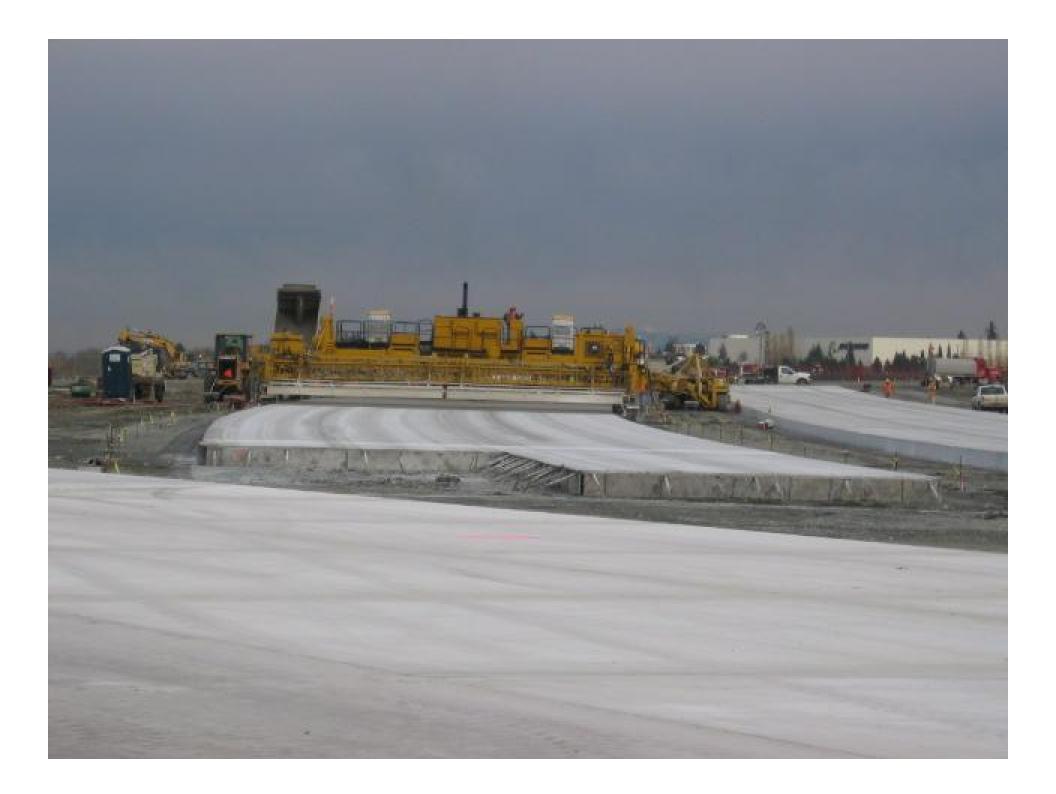




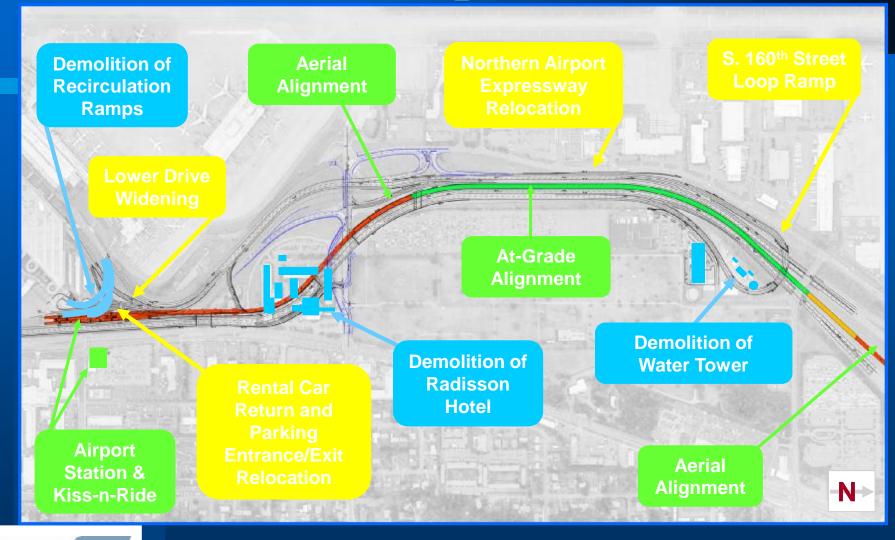








## 160<sup>th</sup> Street Loop/Sound Transit



Port

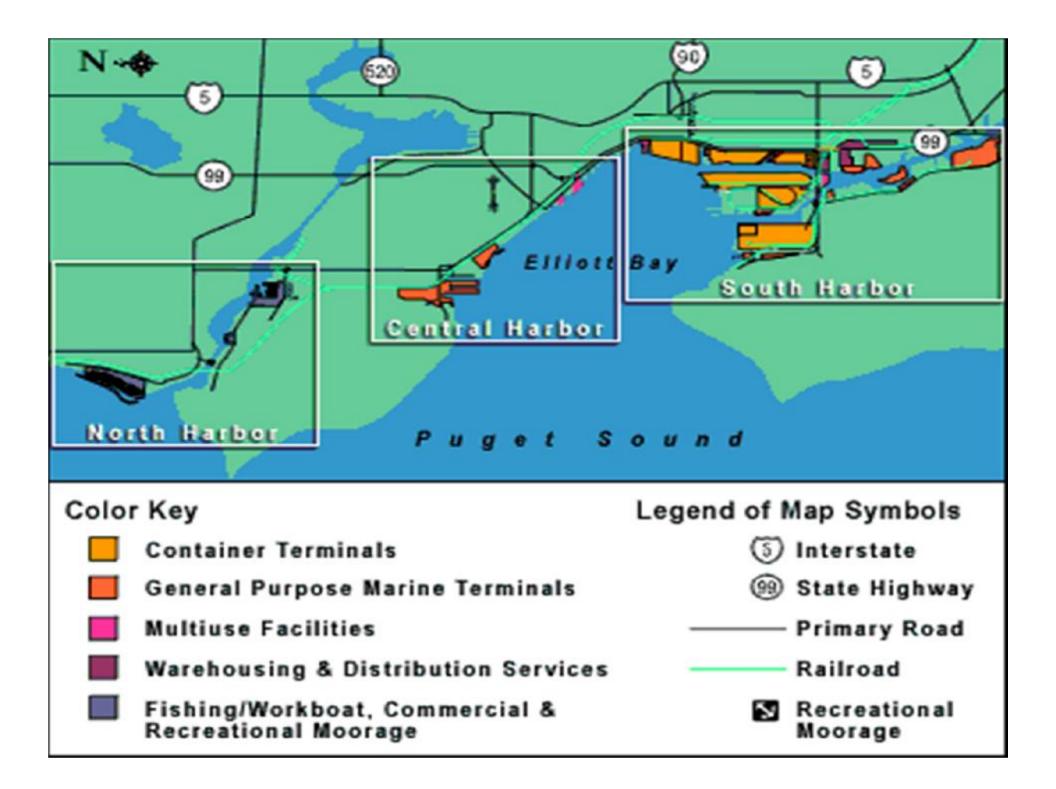
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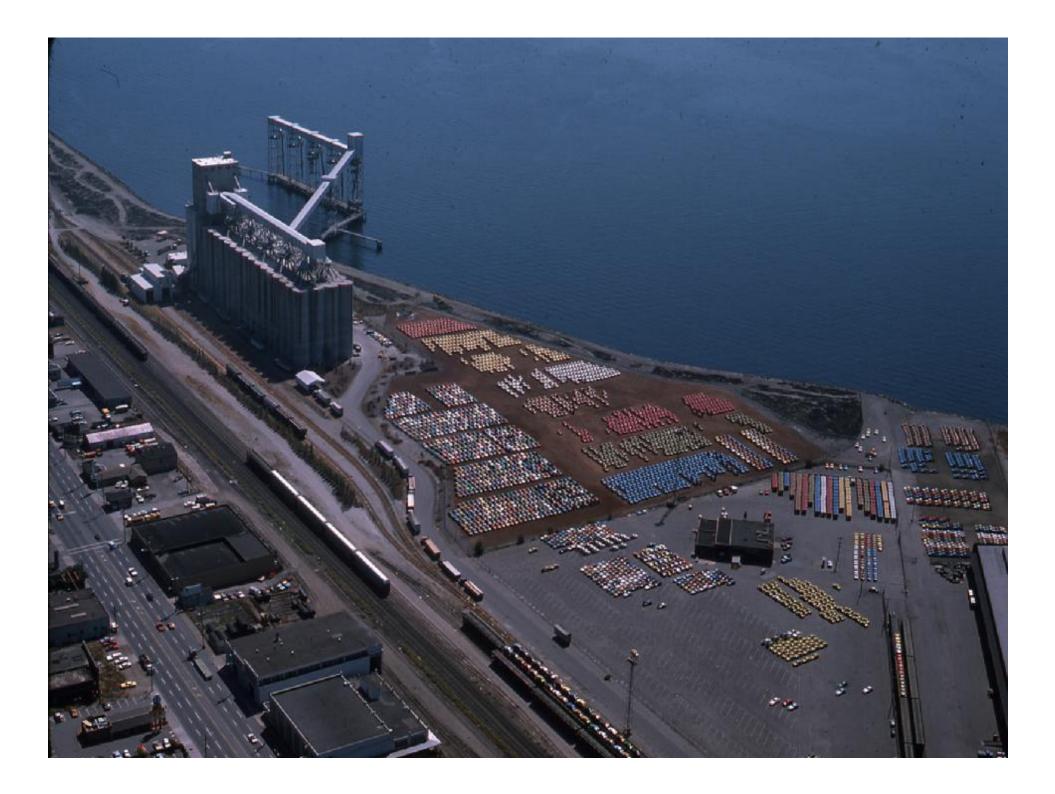
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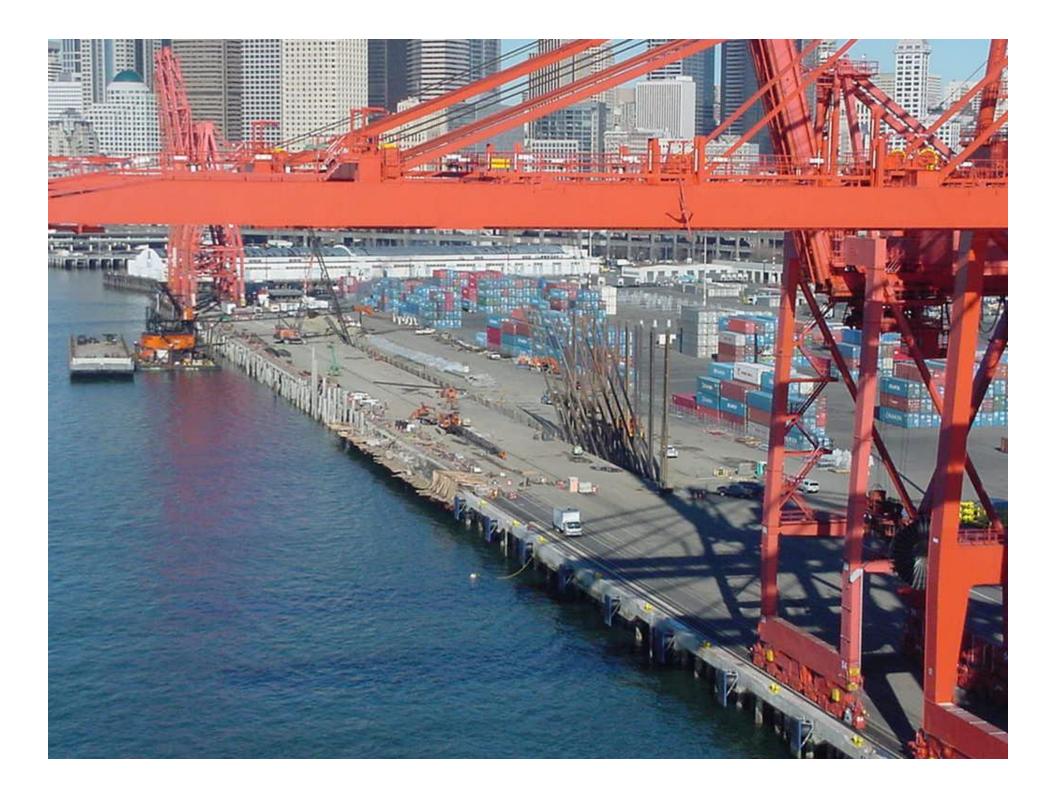




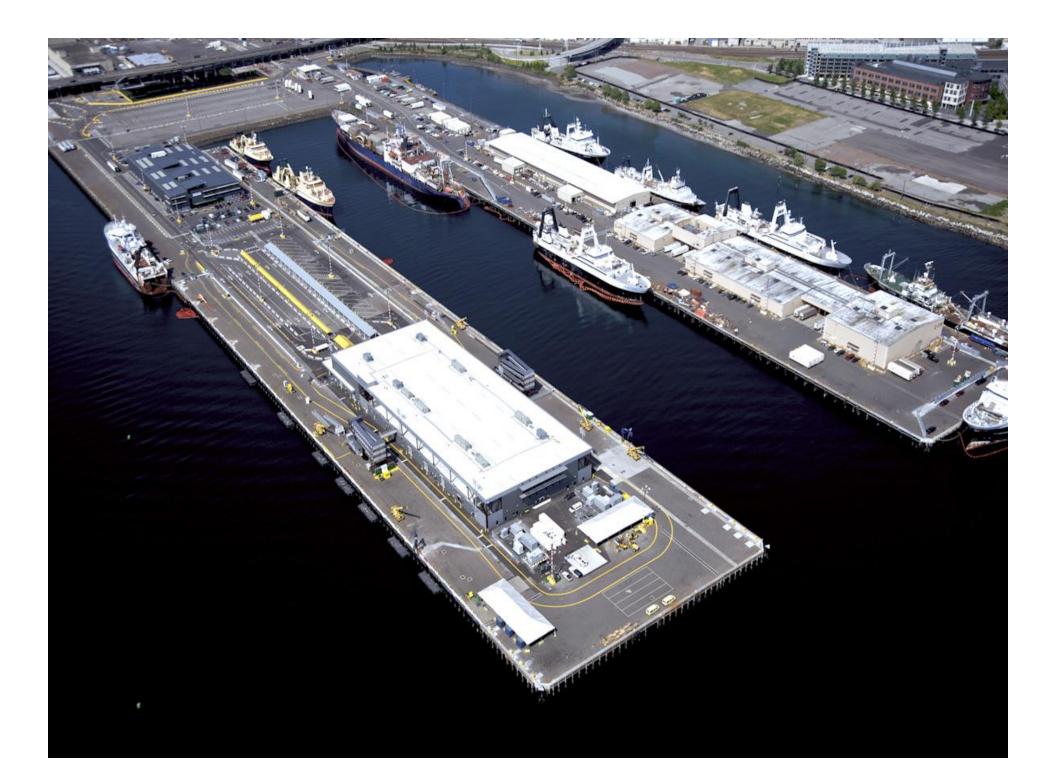






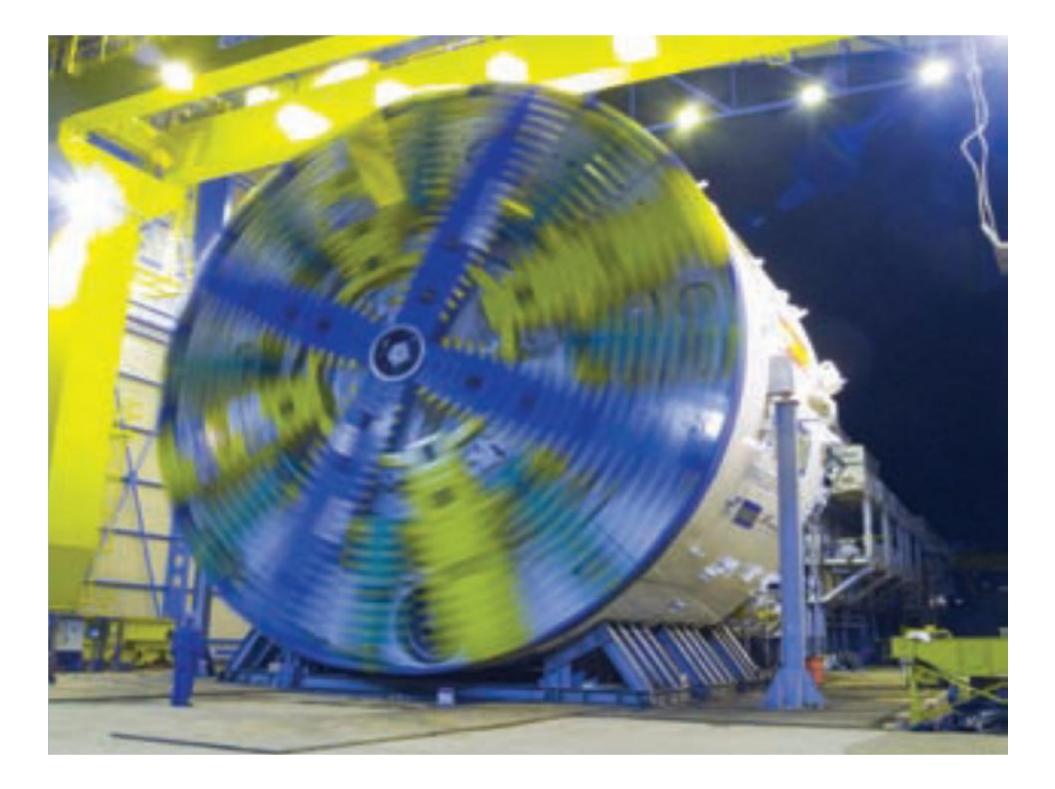












#### Construction Safety Challenges – Aviation and Marine

## Additional Regulatory Agencies – FAA, TSA, Coast Guard, WSDOT, City Agencies, Insurance Carriers









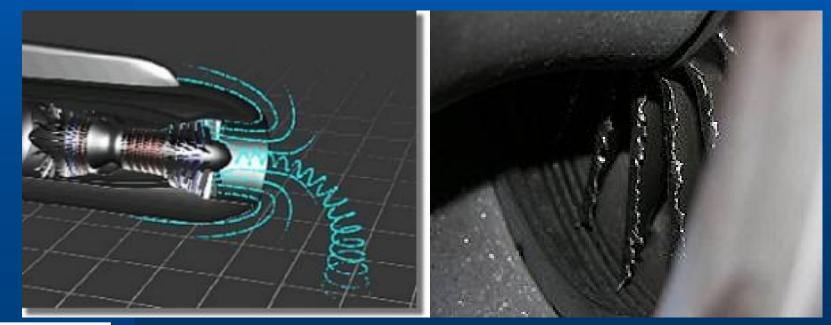
## Construction Challenges with Air and Ground Traffic



## Foreign Object Debris Control

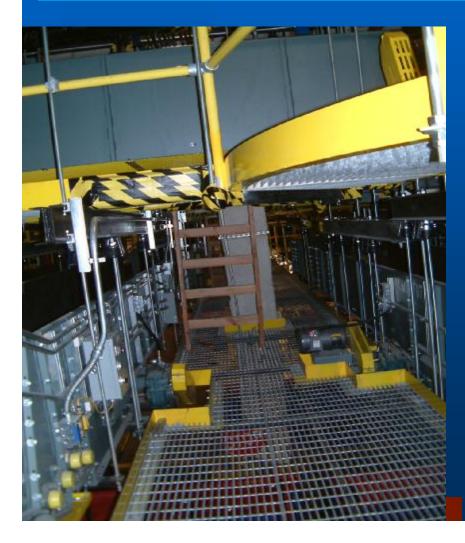
#### SIGNIFICANT ACTIVITIES

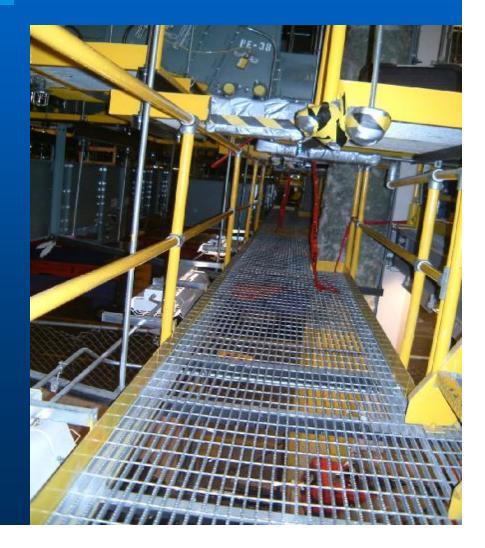
1615 Inspection Construction Site: Contractor using loose sand at TWY
 L. OPS requested that this be removed and replaced with sand bags.





# Work Associated With Conveyance Systems





#### Construction vs. Security

Badging Requirements for workers
 Driving Safety
 on the Airport
 Operations Area
 (AOA)





#### **Emergency Management**

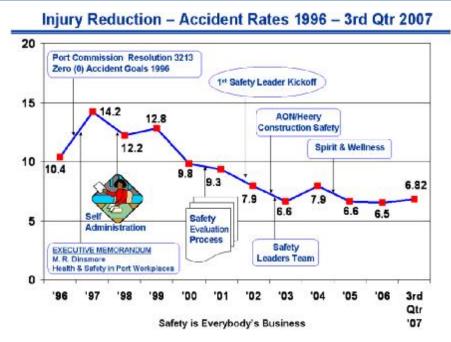




#### Background - Timeline

- 1996 POS Internal H & S Program Adopted
- **1999 OCIP Initiated for Aviation CIP**
- **1 2000 Started Initial Aviation CIP Safety Program**
- **1** 2003 Initial CIP Construction Safety Program
- **2004 focused on:** 
  - Zero Injury Culture
  - Competent Persons
  - Job Hazard Analysis
- 2005-Present --ContinuousImprovement





## **Capital Improvement Program**

- **| State Labor & Industries** 
  - Stute Decision: Multi-employer worksite
- **Owner Controlled Insurance Program** 
  - AON OCIP
- **Construction Building Trades** 
  - Project Labor Agreement
- **I** Best Management Practice
  - Visited Other Airports Undergoing Major Construction
- I Industry Groups
  - AGC
  - Puget Sound Safety Summit



### Background

- **I** Owner Benefits of Safe Work Environment
  - No Negative Publicity
  - Exposure to Customers/Public
  - Uniformity/Consistency with Port wide CIP's





## Background

#### Goals

- Proactive approach to mitigate risk & negative public relations exposures -
  - Port of Seattle (POS) projects are highly visible and in the public eye
- Ensure that Contractors maintain responsibility for safety on their project sites
- Maintain a uniform & consistent Construction Safety Program on all POS projects for all Contractors
- Provide safety oversight



# Background

#### **Costs**

- 0.5% to 1.5%
- Variables
  - Project Size
  - Complexity/Nature of Work
  - Logistics
  - Phasing & Shift work
  - Staffing
  - Apprenticeship



- Number of Projects
  - Location
- Contractor/Sub-tiered
  - Skill Levels
  - Past Experience
  - Lagging Indicators
- Types of Equipment



## **Implementation** Commitment

#### **Resources**

- Staffing
- Equipment
- Facilities
- **Construction Safety Specifications**
- **I** Construction Safety Manual



# Full Circle Safety Implementation

- **Planning Includes:** 
  - Site Specific Safety Plan Submittals/Reviews
  - Pre-bid/Pre-construction Meetings
  - Pre Notice-to-Proceed Meetings
  - Safety Orientations
  - Environmental & Health Requirements
    - Asbestos Awareness, Silica Management, Noise
    - Hazardous Chemicals
      - **Dirty Dirt**



# Full Circle Safety Implementation (cont.)

#### **Execution**

- Jobsite Safety Inspections
  - Training
    - External Contractors and sub-tiered contractors
    - Internal Port Employees and Consultants
  - Monthly Contractor Safety Rep. Meeting
  - Safety Committees
- Adjusting
  - Accident Investigations
  - Lessons Learned



Leading Indicators

 Program Evaluations
 Monthly Recommendations

 Lagging Indicators

 Lost Workday Incident Rate
 Recordable Incident Rate



**Project Evaluation** 

 Leading Indicators
 Program Evaluations
 Program

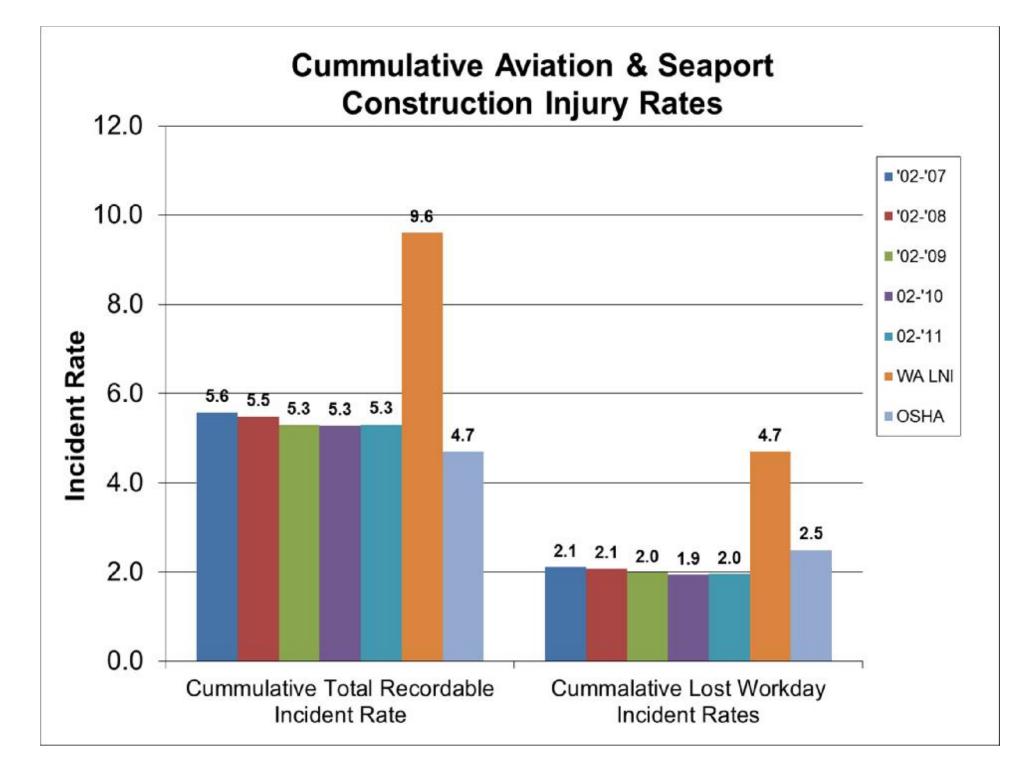
Elements



Score VG=4/G=3/AVG=2 /NI=1/P=0		Evaluation Item				
Sub	Total	Program Elements				
		1. Safety Orientations –Site-specific				
		2. Job Hazard Analysis – Quality				
		3. Job Hazard Analysis – Number in relations to work				
		4. Hazard Communications/Material Safety Data Sheets				
		5. Safety Meetings – Safety Meeting Management				
		6. Safety Committee Meetings – Quality				
		7. Daily Audits – Quality / Number of audits				
		8. Evidence of program enforcement				
		9. CSIR's - Recommendations, repeats, corrective action				
		10. Equipment Inspection Documentation				
		11. Worker Certifications / Competent Person Certifications - Current				
		12. Incident Management – Quality of Investigations				
		13. Sub-Contractor site-safety plan review by GC				
		14. Stretch & Flex				
1		15. Public Safety				
	/G=3/A NI=1/P=	/G=3/AVG=2 NI=1/P=0				

Jan         Feb         Mar         Aor         May         June         Jung         Jung         Sect         Not         Noc           Access/Egress         2         1         2         1         2         1         7         7           Confined Space Entry         1         1         1         1         3         1         8           Demolition         1         1         1         1         3         1         8           Demolition         1         1         1         2         2         1         9           Demolition         1         1         1         2         2         2         1         9           Demolition         1         1         1         1         2         2         1         2           Ubt Protectical         1         1         1         1         1         1         2         1         2           Der Flextical         3         1         2         1         1         4         2         1         1           In No Fall Protection in Use         2         1         1         2         1         7         32	Recommendation Categories	2011 Monthly Recommondations							Totals to Date					
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Rebar/Impalement         1         4         3         6         4         2         3         2         2         1         28           Rigging/Slings         1         2         1         2         3         1         1         2         0         0           Scaffolding         1         2         1         2         3         1         1         10         0           Signs/Barricades         1         1         1         1         2         0         2         3         1         1         10         2           Steel Erection         1         1         1         1         1         5         0         0         0           Traffic Control         3         1         1         2         1         4         2         1         1         14           Monthly Totals         25         39         42         14         20         34         20         21         52         57         17         24         365           Good Notes         0         14         31         11         9         7         3         0         5         8         2				6			2	1				1		-
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Signs/Barricades       Image: Constraint of the system of th		1	2						2	3	1		1	-
Steel Erection         0         0         0           Traffic Control         3         1         1         1         5           Welding/Cutting/Cylinders         1         1         1         2         1         4         2         1         1         14           Monthly Totals         25         39         42         14         20         34         20         21         52         57         17         24         365           Good Notes         0         14         31         11         9         7         3         0         5         8         2         2         92		<u> </u>	~				1		~					
Traffic Control       3       -       -       -       1       1       5         Welding/Cutting/Cylinders       1       1       1       1       2       1       4       2       1       1       14         Monthly Totals       25       39       42       14       20       34       20       21       52       57       17       24       365         Good Notes       0       14       31       11       9       7       3       0       5       8       2       2       92														
Welding/Cutting/Cylinders         1         1         1         1         2         1         4         2         1         1         14           Monthly Totals         25         39         42         14         20         34         20         21         52         57         17         24         365           Good Notes         0         14         31         11         9         7         3         0         5         8         2         2         92		2								1	1			-
Monthly Totals         25         39         42         14         20         34         20         21         52         57         17         24         365           Good Notes         0         14         31         11         9         7         3         0         5         8         2         2         92				1			1	2	1			1	1	
Good Notes 0 14 31 11 9 7 3 0 5 8 2 2 92			30		14	20								
	Close Calls Reported	2	14	31	2	9	1	3 0	1	5	8 1	2	<u> </u>	92 12





# Construction Safety Pro-Active Involvement

Participation in the Aviation Leaders Meeting
 Larger \$\$ Safety Partnering Workshops

 2013 16C/34C Replacement

 Port Construction Services Safety Oversight
 Active Participation in The Veteran's Fellowship Program



## **Construction Safety Report**

#### 2011 Injury Log January thru November

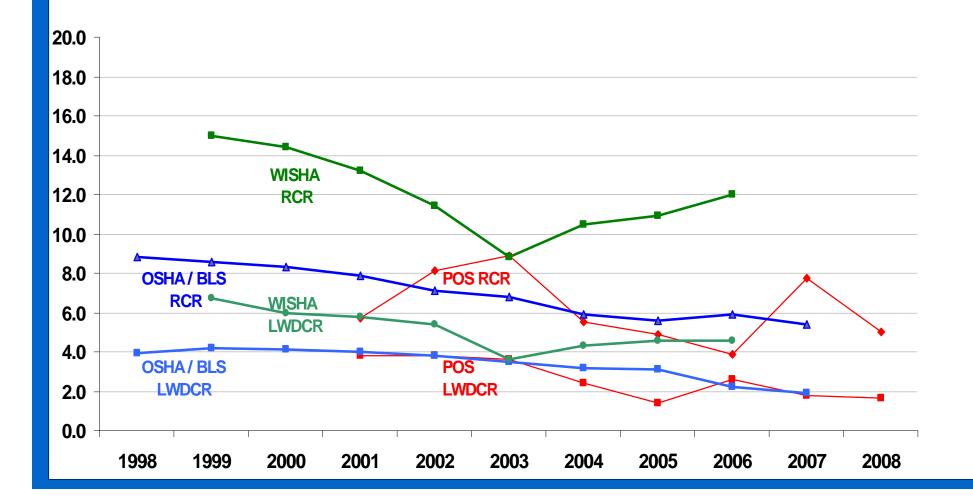
Division		Recordable Injuries	Lost Work Duty Cases		
	Aviation	4	2		
	Seaport	3	0		
Date	Project	Injury/Body Part	Status	Division	
		September			
09/09/11	Bus Maintenance Facility	Other/Brush Fire	Property	Aviation	
09/26/11	Consolidated Rental Car Facility	Foreign Object/Eye	First-Aid	Aviation	
09/29/11	Consolidated Rental Car Facility	Foreign Object/Mouth	Report Only	Aviation	
		October			
10/06/11	CRCF	Equipment Damage	Near -Miss	Aviation	
10/07/11	CRCF	Property Damage	Property	Aviation	
		November			
11/21/11	CRCF	Electrocution	First-Aid	Aviation	
11/30/11	CRCF	Contusion – Fingers	Recordable	Aviation	



Safety is Everybody's Business!



**Annual Review of Incident Rates against POS Statistics** 



#### Results

- I Improved Safety Record on CIP
- Greater Involvement
  - External Contractors and sub-tiered contractors
  - Internal Port Employees and Consultants
- **Contractor Recognition Program** 
  - In the field
  - Formal Recognition
    - Example Pellco Construction
- Quantifiable Results



## Costs/Benefits

#### **Benefits**

- Accomplishment of Project/Port Mission/Goals
- Savings
  - OCIP
  - Workers Compensation
  - Laws/Regulations
- Less Risk for Impacts
  - Budget
  - Schedule





## Conclusion

# Systematic Approach to Mitigate Risk Not a magic wand Proven results



### Lessons Learned

**I** More Stringent Requirement

**Stick To Your Guns** 

Provide Meaningful Assistance



## The End

I Thank you for your time.
I Questions?
I Take care & Be Safe!

