

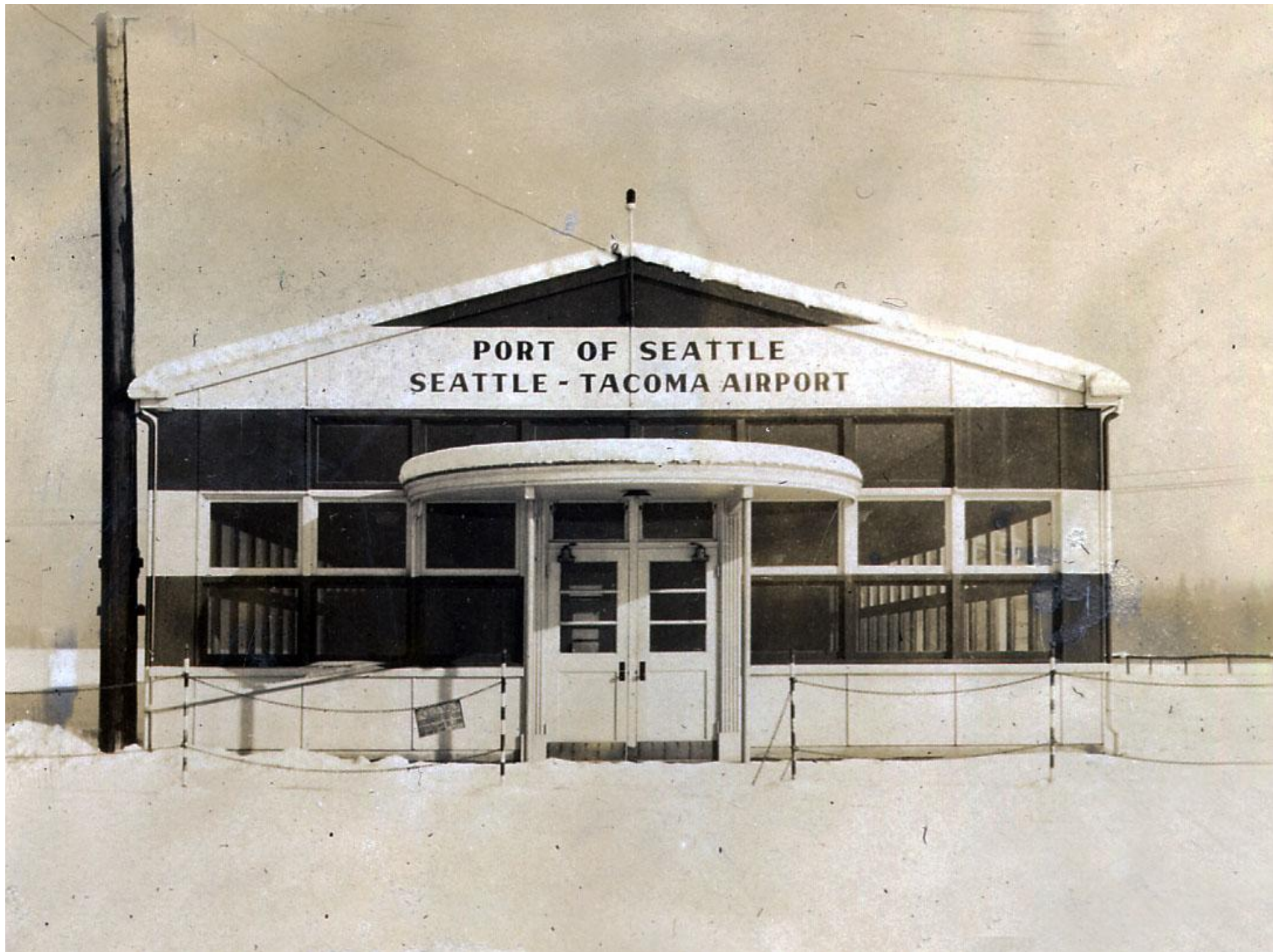


Northwest Construction Consumer Council

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

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

**PORT OF SEATTLE
SEATTLE - TACOMA AIRPORT**







12-2-04

S 60













11-14-07

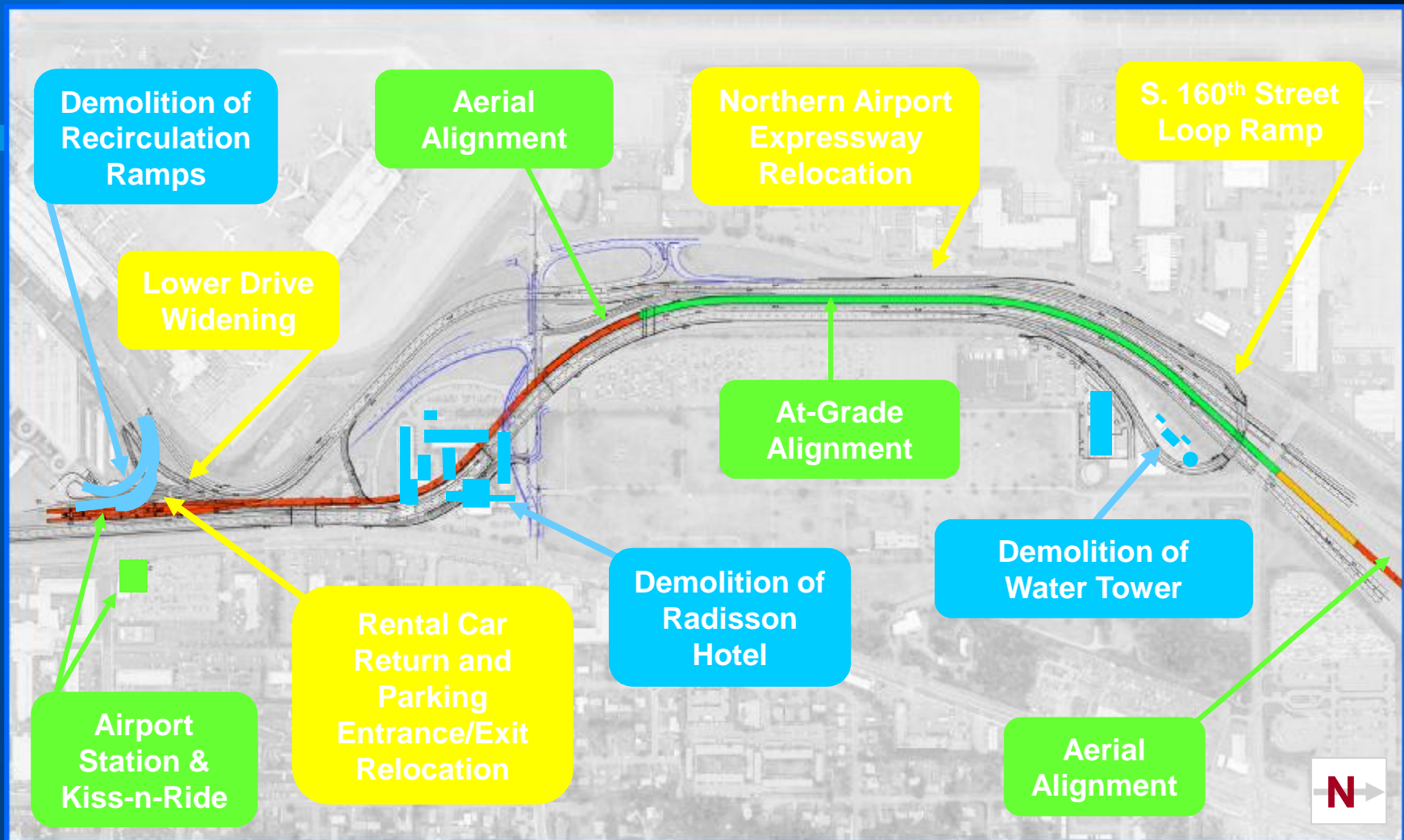
SKY-PIX
800.325.4342







160th Street Loop/Sound Transit

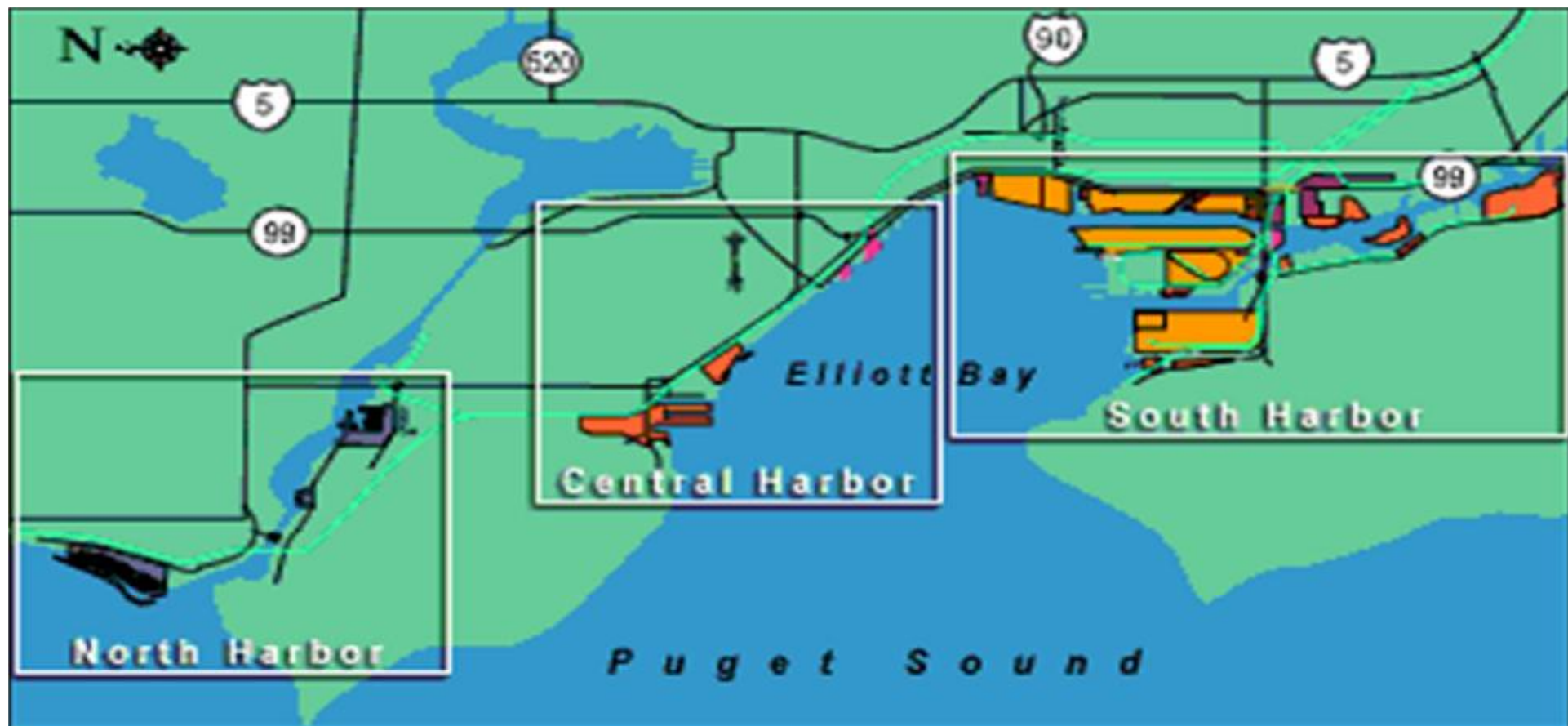




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Color Key

- Container Terminals
- General Purpose Marine Terminals
- Multiuse Facilities
- Warehousing & Distribution Services
- Fishing/Workboat, Commercial & Recreational Moorage

Legend of Map Symbols

- 5 Interstate
- 99 State Highway
- Primary Road
- Railroad
- Recreational Moorage













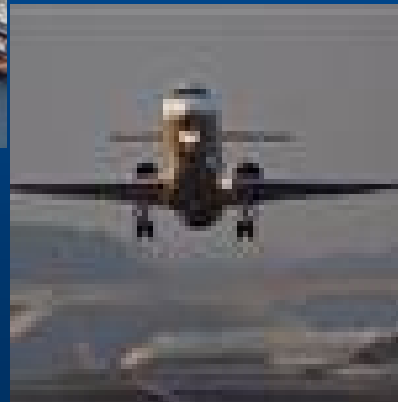




Construction Safety Challenges – Aviation and Marine

I Additional Regulatory Agencies

- FAA, TSA, Coast Guard, WSDOT, City Agencies, Insurance Carriers



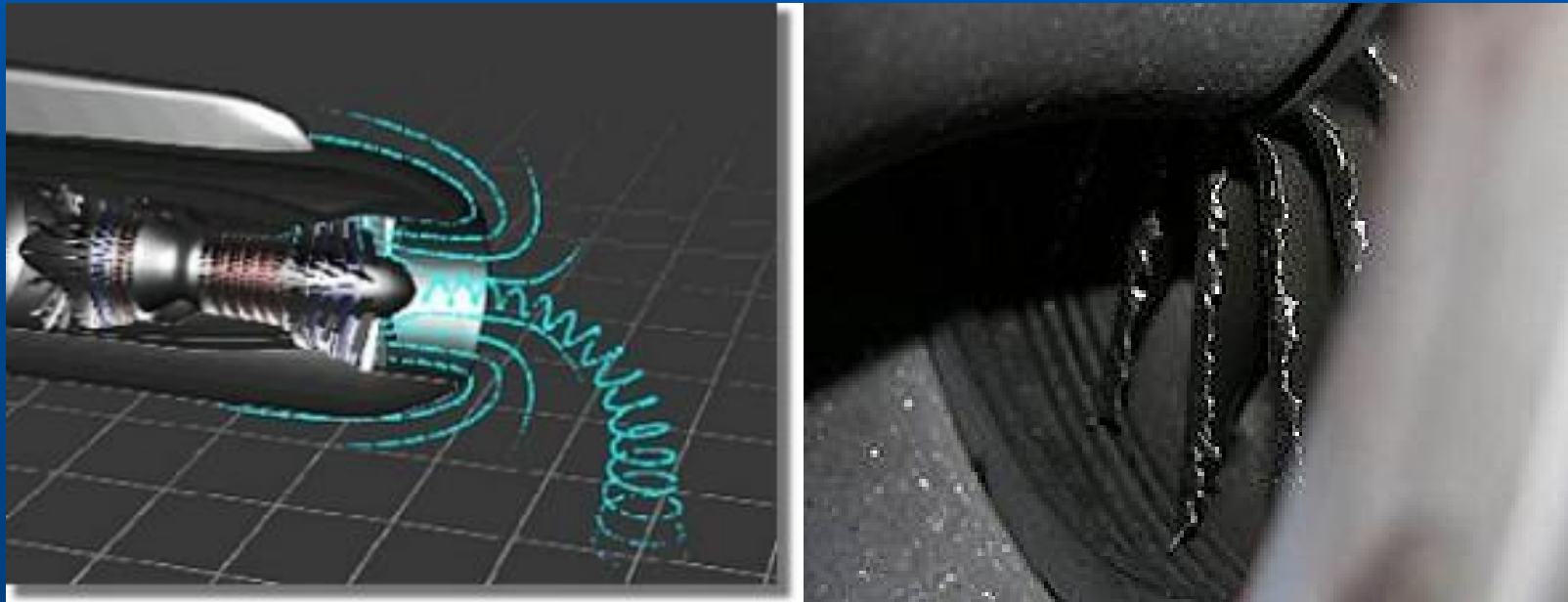
Construction Challenges with Air and Ground Traffic



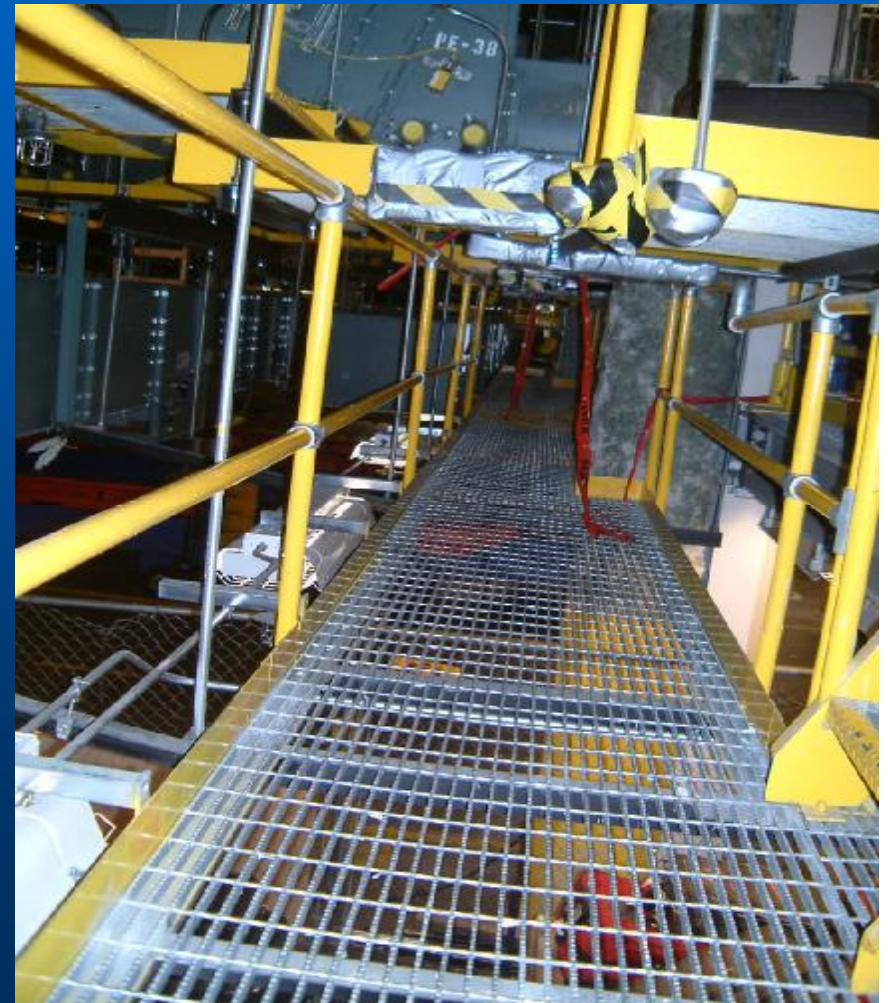
Foreign Object Debris Control

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)

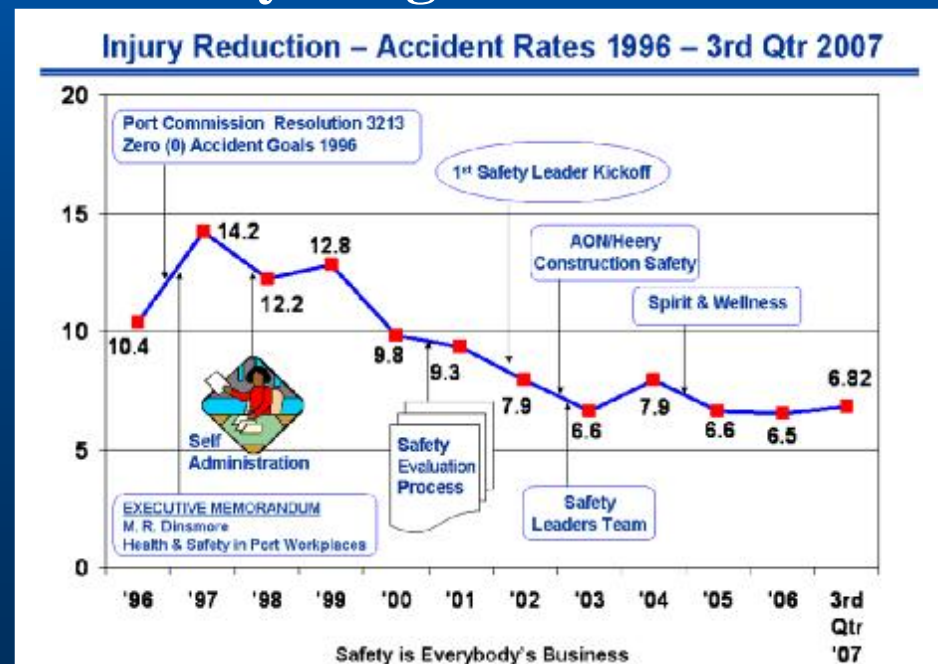


Emergency Management



Background - Timeline

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



Capital Improvement Program

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

Background

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



Background

I 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

I 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**
- | **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.)

I Execution

– Jobsite Safety Inspections

- Training

- External – Contractors and sub-tiered contractors
- Internal – Port Employees and Consultants

- Monthly Contractor Safety Rep. Meeting

- Safety Committees

I Adjusting

– Accident Investigations

– Lessons Learned

Benchmarking Contractor Performance

- | **Leading Indicators**
 - Program Evaluations
 - Monthly Recommendations
- | **Lagging Indicators**
 - Lost Workday Incident Rate
 - Recordable Incident Rate

Benchmarking Contractor Performance

- I **Leading Indicators**
- **Program Evaluations**
- **Program Elements**

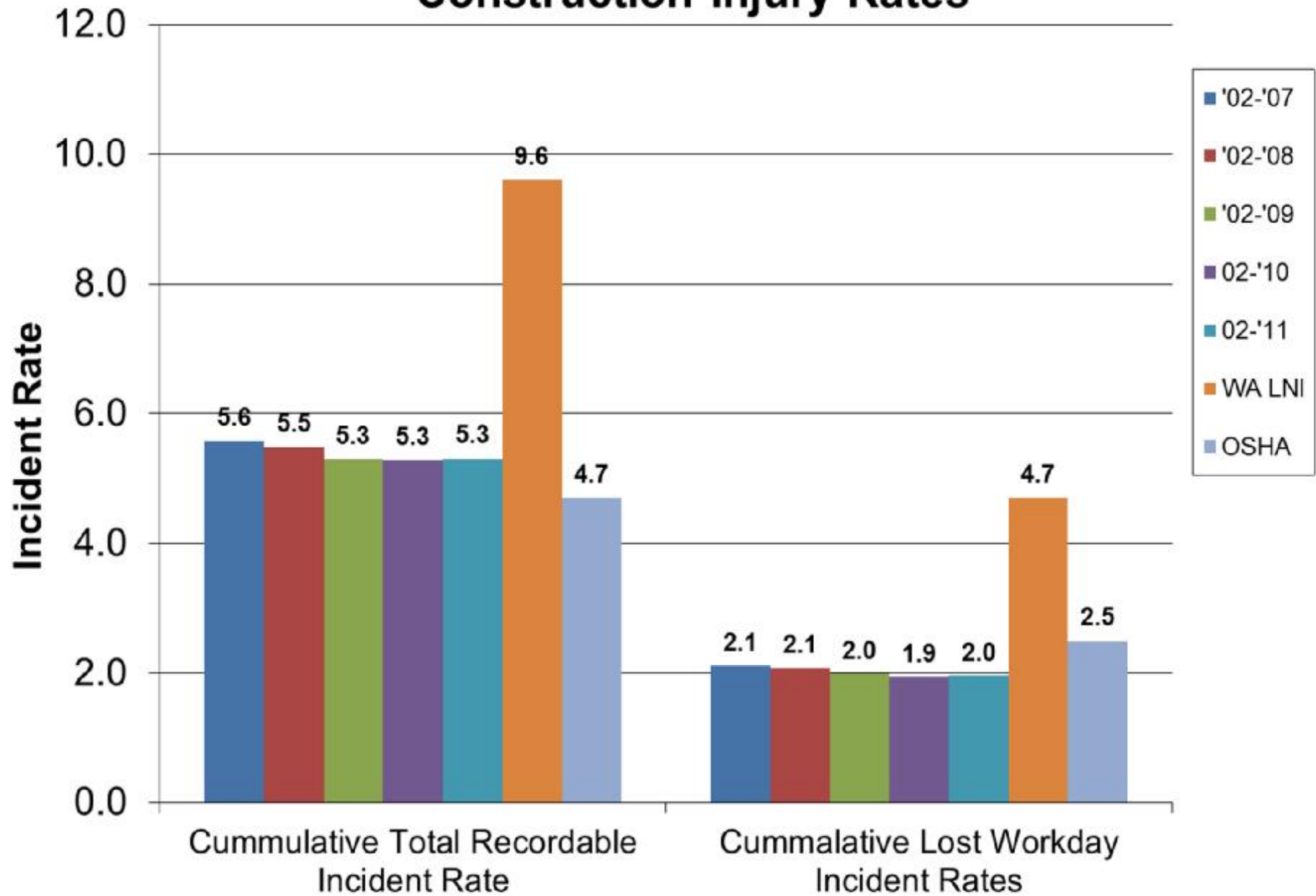
Project Evaluation

Score VG=4/G=3/AVG=2 /NI=1/P=0			Evaluation Item
GC	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
			15. Public Safety

Benchmarking Contractor Performance

Recommendation Categories	2011 Monthly Recommendations												Totals to Date
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Access/Egress	2		1		2					1		2	8
Cranes & Boom Trucks		3				1			2			1	7
Confined Space Entry		1	1		1	1		3		1			8
Demolition													0
Electrical													24
i No GFCI		1				1	2		2	2		1	9
i Damaged Electrical		3			2				2	3	2		12
i Lights w/o bulb protect.		1	1										2
i Other Electrical		1											1
Elevating Work Platforms								1		1			2
Excavation/Trenching									2				2
Fall Protection													32
i No Fall Protection in Use	2	1		2				1					6
i Floor/Wall Openings		3	1			2	1	1	4	2			14
i Use		1	1			1	1		2	1			7
i Warning Lines	2					2		1					5
i No Fall Protection Plan													0
Fire Protection	1	2	1			2			5	2		2	15
Hand/Power Tools		1	1			1			2	1		1	7
Hazard Communication		1							1	1			3
Heavy Equipment/Earthwork	1	2		1		3	1		1	3	3	1	16
Housekeeping	2	5	1	2	1	2			3	6		2	24
Ladder/Stairways	3	3	2	1	1			2	1	2	2		17
Lighting													0
Lock Out/Tag Out													0
Machine Guarding													0
Miscellaneous		2	1			1			2	2	1	2	11
PPE													95
i Eye Protection		2	11	2				1	2		2	1	21
i Hand			7	2	3	3	3	1	3	3			25
i Face			1		1	1				1			4
i Foot			1	1	1	1		1					5
i Hearing										1			1
i Head		1											1
i PFD's												1	1
i Other/Multiple	4				2	4	6	4	3	8	3	3	37
Powered Industrial Trucks	1	1							1	1		2	6
Public Hazard Control	2	1	6			2	1		5	1	1	2	21
Rebar/Impalement		1	4	3	6	4	2	3		2	2	1	28
Rigging/Slings													0
Scaffolding	1	2						2	3	1		1	10
Signs/Barricades						1			1				2
Steel Erection													0
Traffic Control	3								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
Close Calls Reported	2	1	3	2	0	1	0	1	0	1	0	1	12

Cummulative Aviation & Seaport Construction Injury Rates



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

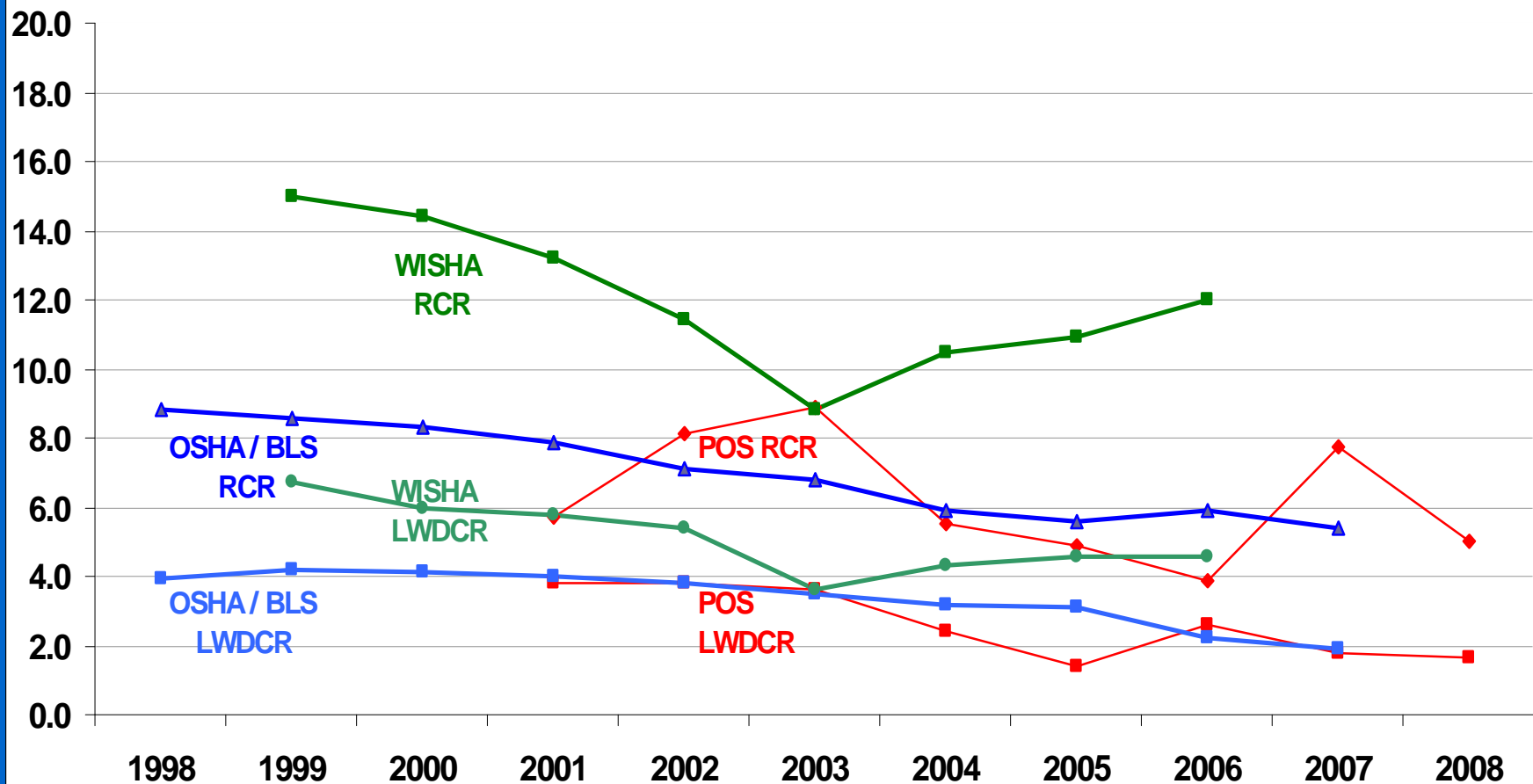
2011 Injury Log January thru November

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

Benchmarking Contractor Performance

Annual Review of Incident Rates against POS Statistics



Results

- | 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

I 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

- | **More Stringent Requirement**
- | **Stick To Your Guns**
- | **Provide Meaningful Assistance**

The End

- | Thank you for your time.
- | Questions?
- | **Take care & Be Safe!**