

Importance of Maintenance in Tahoe EIP and TMDL

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Outline

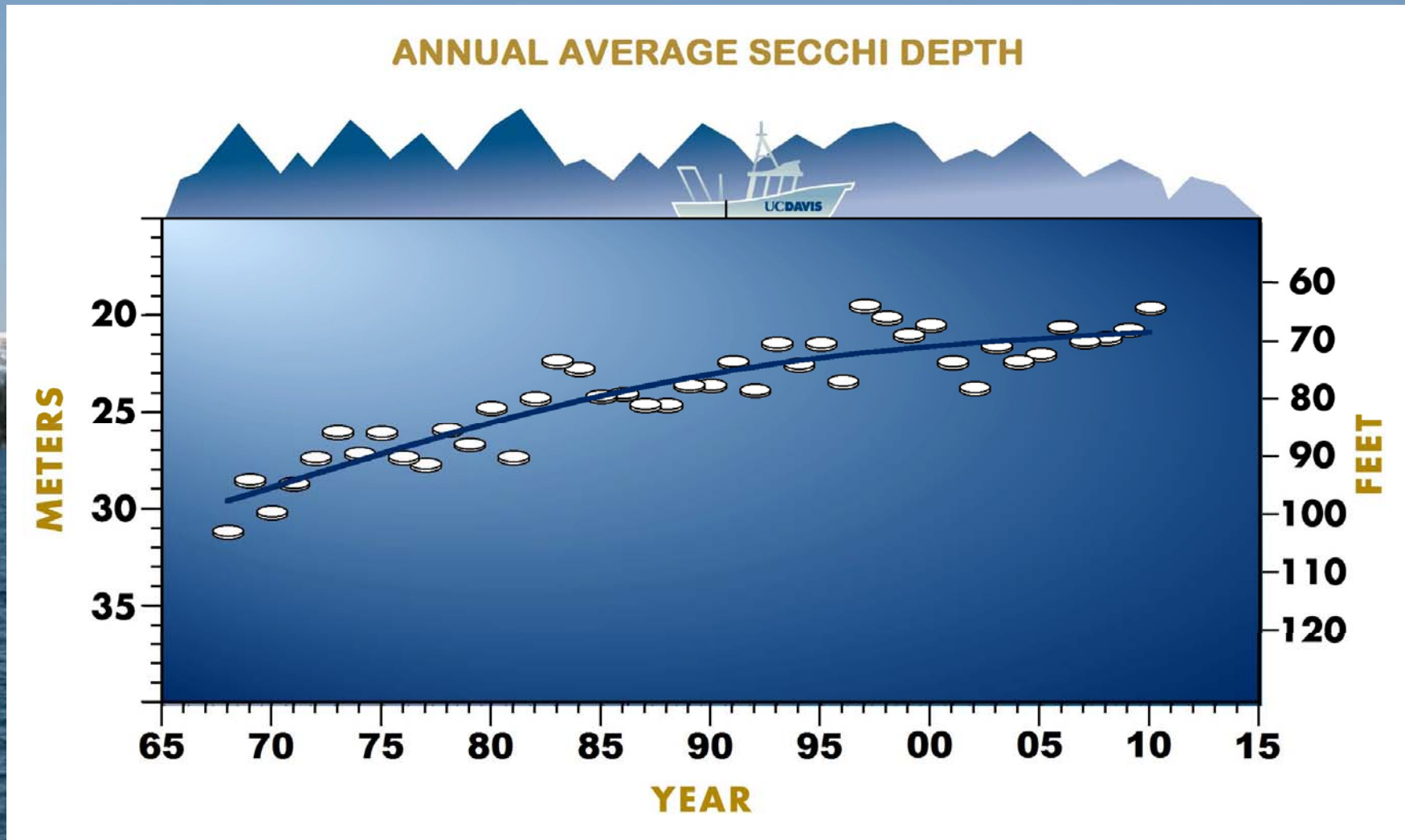
- Lake Tahoe Clarity: Capitol Improvements Vs. Maintenance
- Maintenance Issues and Design
- Innovations and Toward the Future

- An Outstanding
- Clarity: alpine lake is 3/5
- Fine Sediment load - major threat to clarity



source.
surface of
load - major

Lake Tahoe Clarity



1996-1997: First NDOT Lake Tahoe EIP Projects

1995-1996: NDOT changed application of traction abrasive methods

Capitol Vs. Maintenance

- Over \$500 Million has been spent on Tahoe EIP Projects in Last 13 Years
- Community maintenance budgets and personnel under continued pressure
- TMDL Crediting Program forcing DOTs and municipalities to address maintenance issues

Issues

- Road sand
- Shoulder/slope erosion
- Material that clogs facilities
same material we don't want
discharged to Lake Tahoe

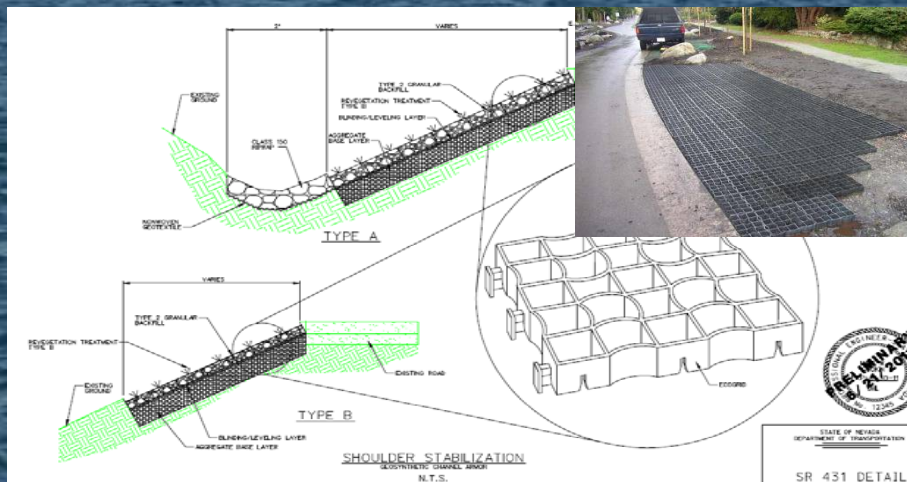


Design Facilities to Address Issues

- Design projects with maintenance equipment and personnel in mind
- Hard surface drainage features
- Curb and gutter?
- Transitions to allow vehicle/equipment access
- Experienced hydraulic engineers and maintenance personnel involved in construction



Sediment capture at inlet



Innovations/Future

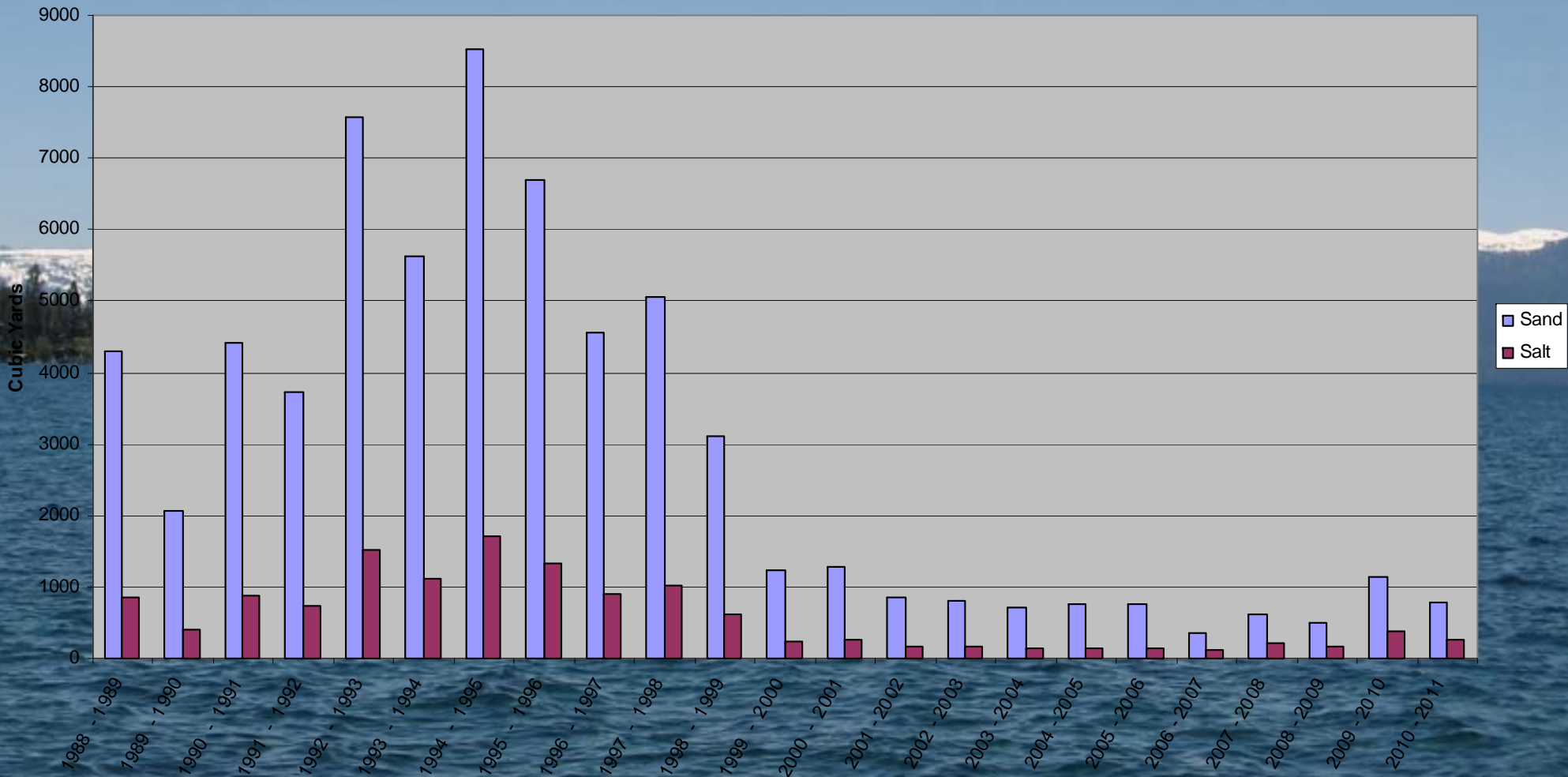
- Improved traction application and removal
- Improved traction material - less likely to ablate into FSP
- Studies comparing practices vs. results
- New sweeping vehicle acquisition
- Additional funding

Improved Traction Application and Sweeping Methods

- NDOT has vastly improved efficiency of traction application throughout Tahoe-apply abrasives strategically for less application with same level of safety
- Design improvements for ease of sweeping
- Improve Sweeping Methods –high efficiency sweepers pick up fine-grained sediment particles
- NDOT washes abrasive aggregate to minimize fsp
- Use of aggregate with higher specific gravity to decrease ablation of traction material

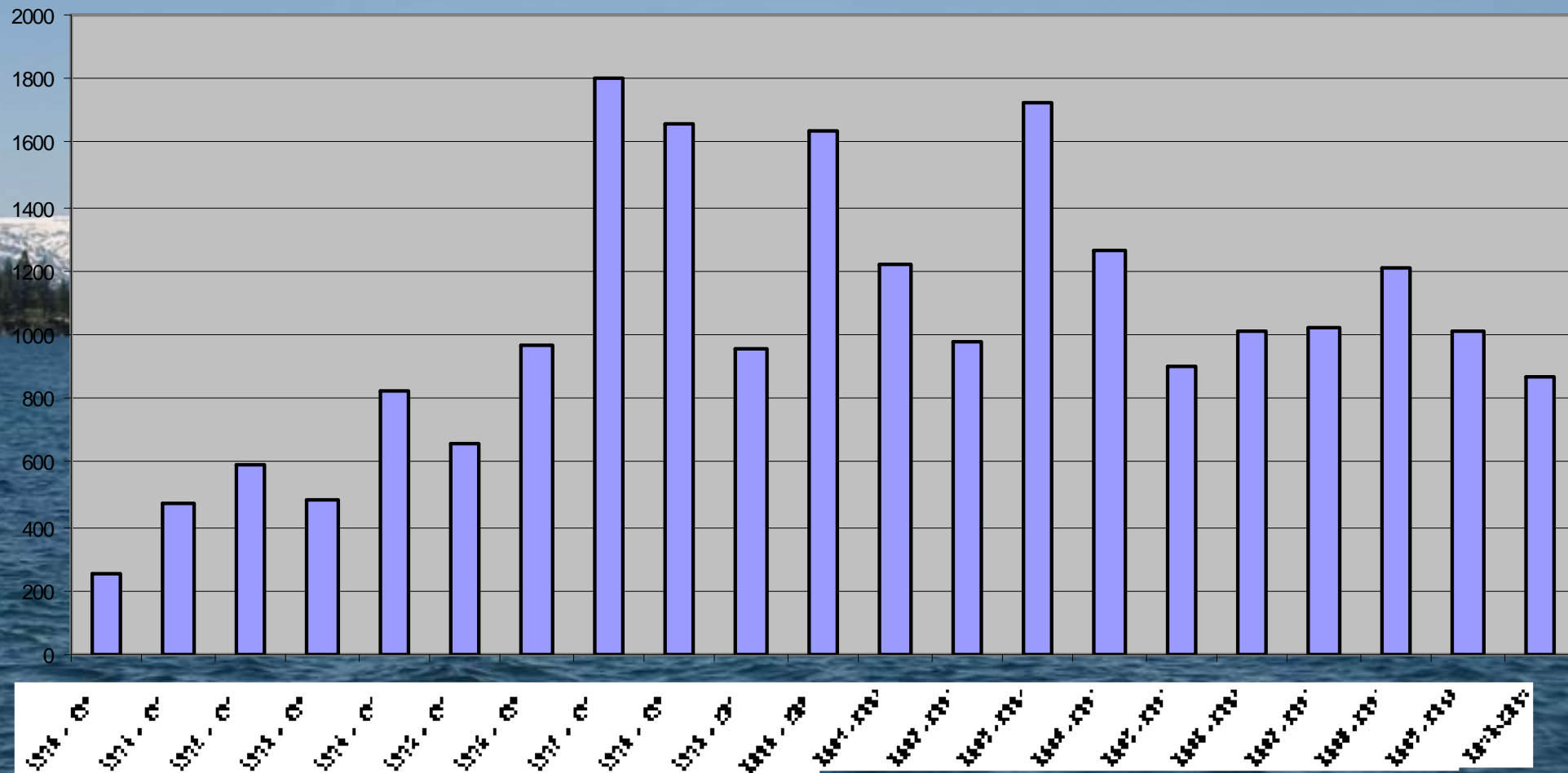
Reduced Sand and Salt Applications

NDOT Applied Roadway Abrasives



Increased Sand Removal

SAND RECOVERED FROM SWEEPING



Seasonal PM₁₀ Road Dust Emission Factors found in emissions study by DRI and NTCD

Road Type	Maintenance Group	Summer EF (g/vkl)	Winter EF (g/vkl)
Primary	Caltrans N	0.13	0.68
Primary	Caltrans S	0.11	0.57
Primary	NDOT	0.05	0.26
Primary	SLT	0.24	1.05
Primary	Washoe	0.06	0.40
Secondary	Placer	0.66	2.35
Secondary	Washoe	0.15	0.63
Tertiary	El Dorado	2.56	3.46
Tertiary	NV GID	0.61	2.14
Tertiary	Placer	2.15	5.96
Tertiary	SLT	0.66	1.18
Tertiary	Washoe	0.62	1.91

Questions

