

Transportation Measures

TRANSPORTATION MEASURES WORKING GROUP
JUNE 14, 2017



A Voice for Lake Tahoe

White paper

1. Connectivity
2. Economic Vitality & Quality of Life
3. Environment
4. Operations & Congestion Management
5. Safety
6. System Preservation



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Focus Areas

1. Connectivity – Non-auto
2. Economic Vitality & Quality of Life – Non-auto and Congestion
3. Environment – Water Quality and Air Quality
4. Operations & Congestion Management – Congestion
5. Safety
6. System Preservation



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Content

1. Congestion - Ron Milam, Fehr and Peers
2. Non-auto transportation – Brett Hondorp, Alta Planning and Design
3. Water Quality – Robert Larsen, Lahontan Water Board
4. Air Quality – Dan Segan, TRPA



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Lake Tahoe TMDL Phases

Science Phase (1959 – 2010)

- What pollutants are causing clarity loss?
- How much of each pollutant reaches the lake?
- How much of each pollutant can the lake receive and still meet clarity goal?

Regulatory Strategy Phase (2005 – 2010)

- What strategy should we use to reduce pollutant loading?

Implementation Phase (2010 – 2075?)

- Are we achieving expected reductions in pollutant loading?
- Is lake clarity improving?



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Final Lake Tahoe Total Maximum Daily Load Report November 2010



California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

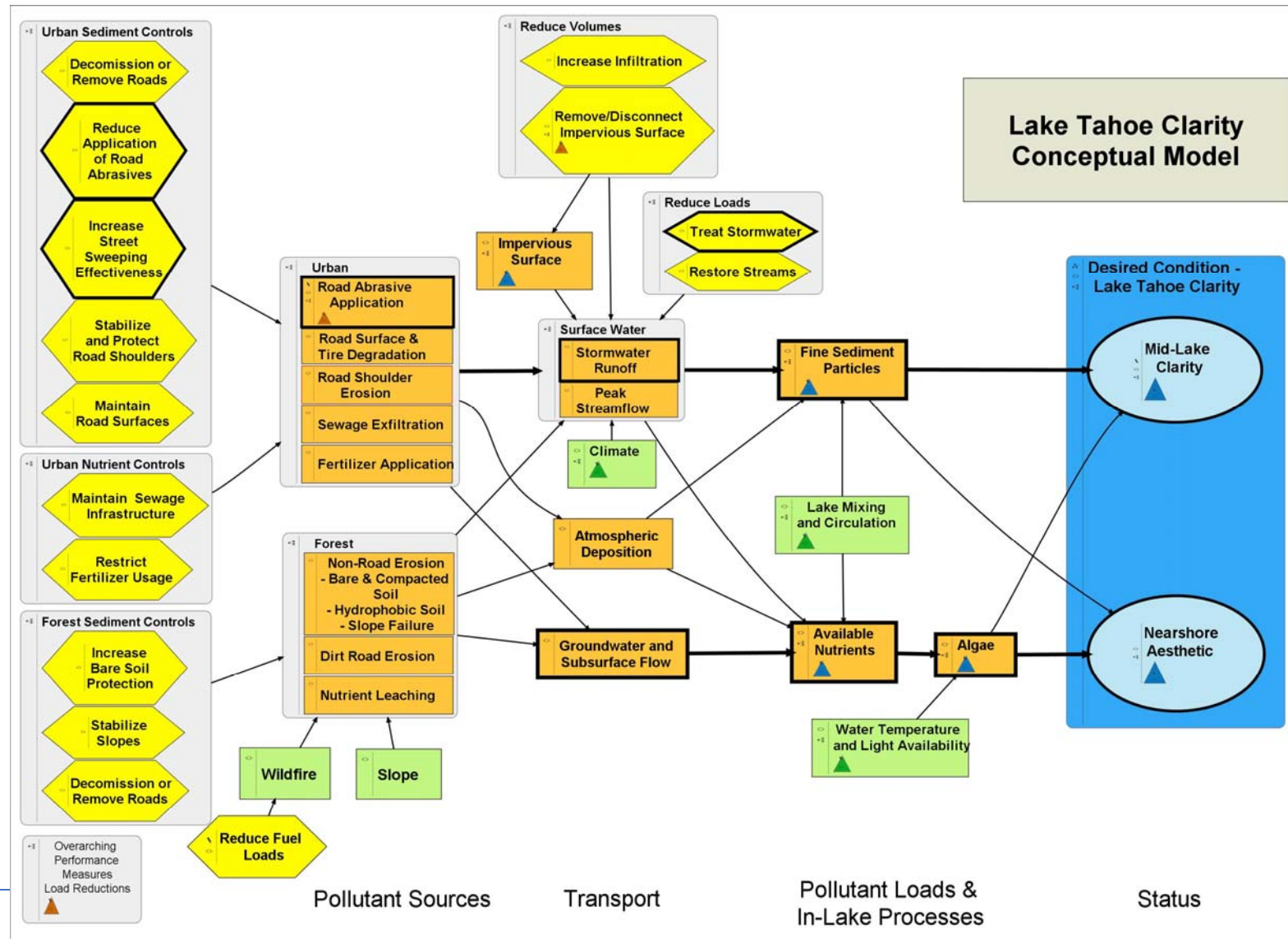
Contact Person:
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DFS@waterboards.ca.gov



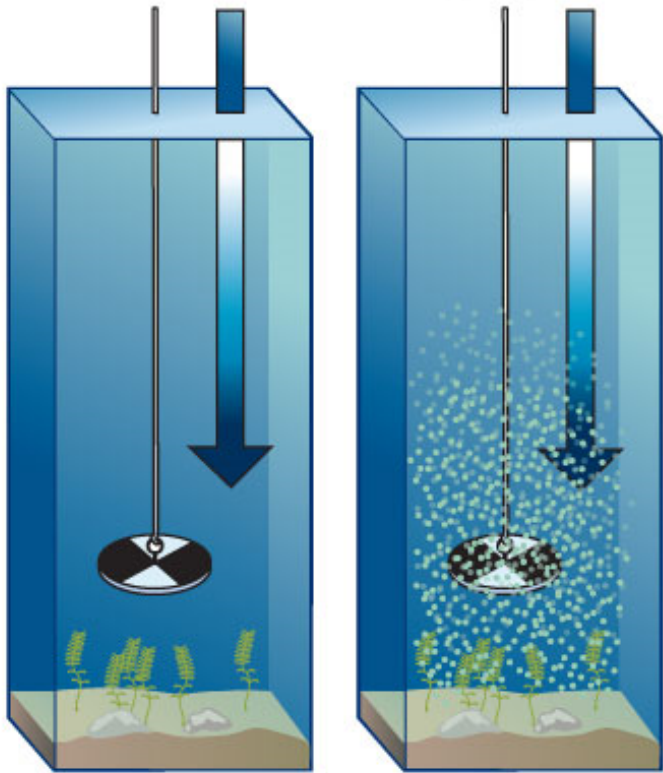
Nevada Division of Environmental Protection
901 South Stewart Street, Suite 4001
Carson City, Nevada, 89701-5249

Contact Person:
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Lake Clarity

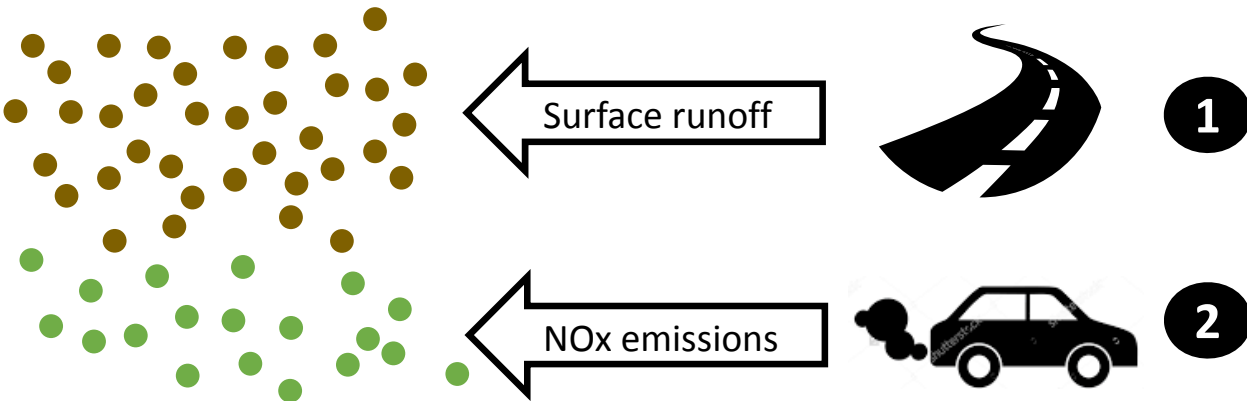


Water clarity



Fine particles

Transportation



Source of fine sediments

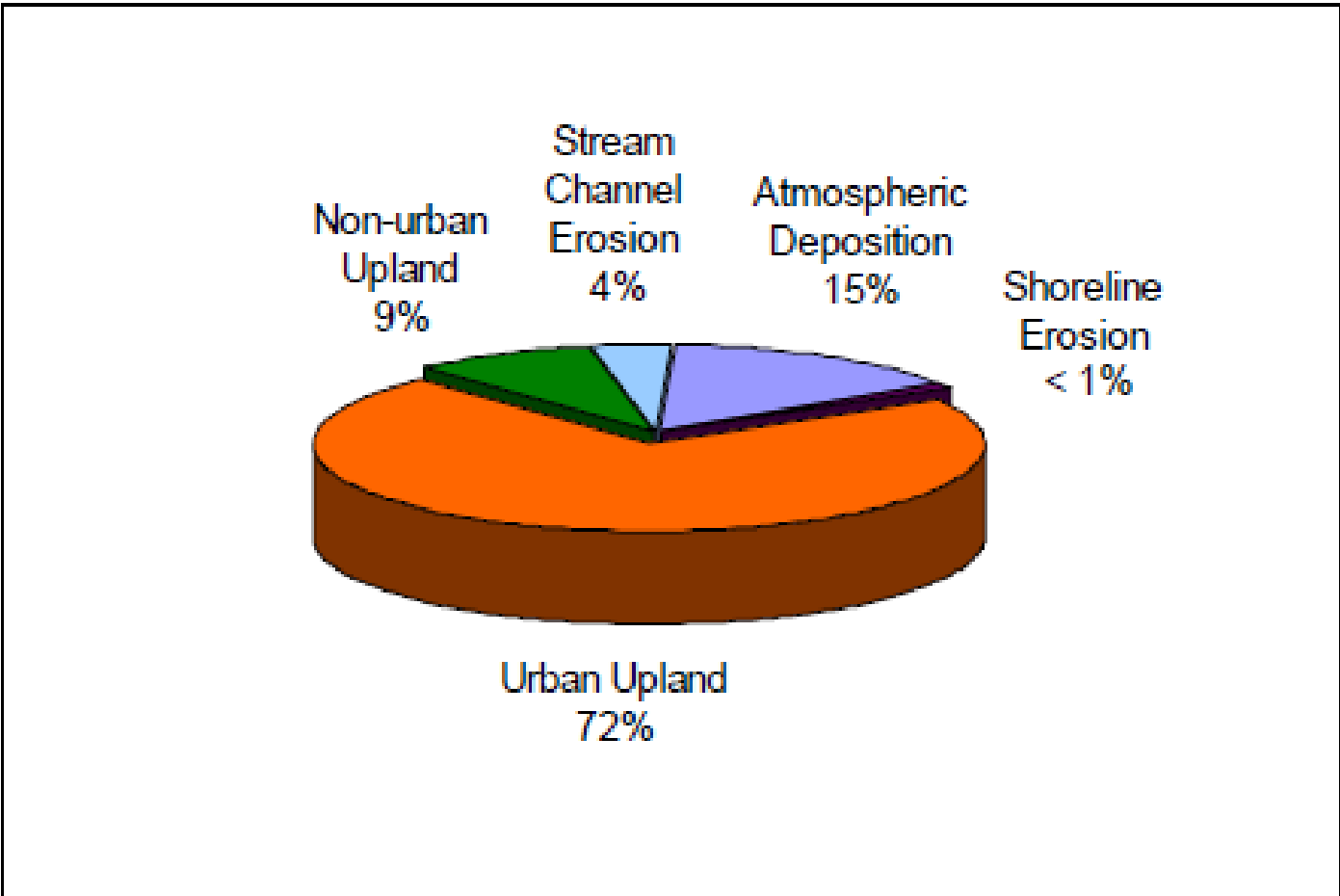


Figure 7-3. Percent Fine Sediment Particle (< 16 micrometer) Contribution per Source Category.

Roads and FSP

- Wintertime FSP from roads is on average 5 times greater than summertime, and can reach 10x summertime levels
- Summer VMT is 40-50% higher than winter

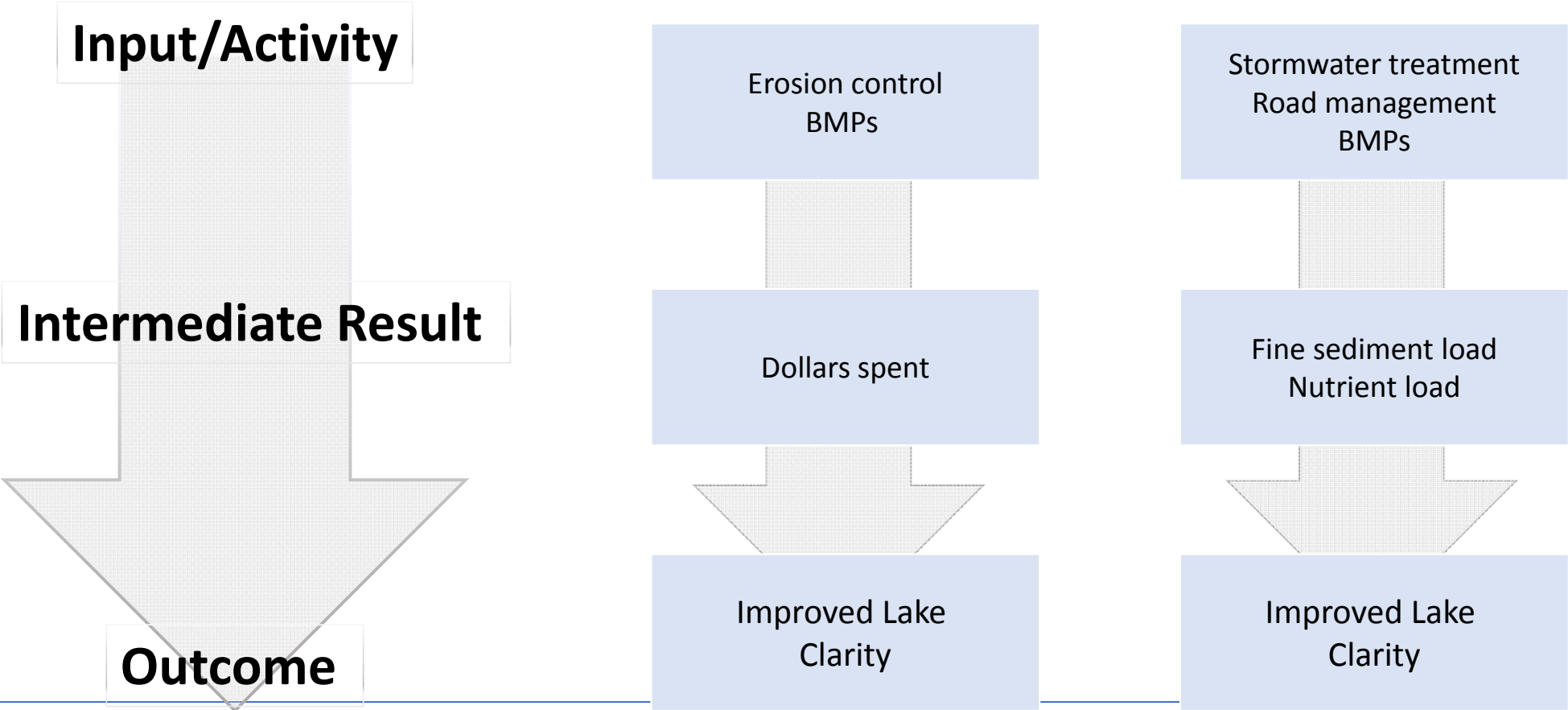
SOURCE: (2NDNATURE et al. 2010; 2NDNATURE 2010, 2012; 2NDNATURE and NHC 2012, 2014; NTCD and DRI 2011; Kuhns et al. 2010; Zhu et al. 2009)



Lake Clarity: urban runoff

1982

2017



Tracking pollutant load reduction

Estimate

Pollutant load reduction model (PLRM)

- EPA urban hydrology model + treatment

Inspect

Field inspection of condition

- Road condition (Road RAM)
- Stormwater infrastructure condition (BMP RAM)

Validate

Water quality sampling to evaluate model and inspection performance (RSWMP)



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Origin of the VMT standard



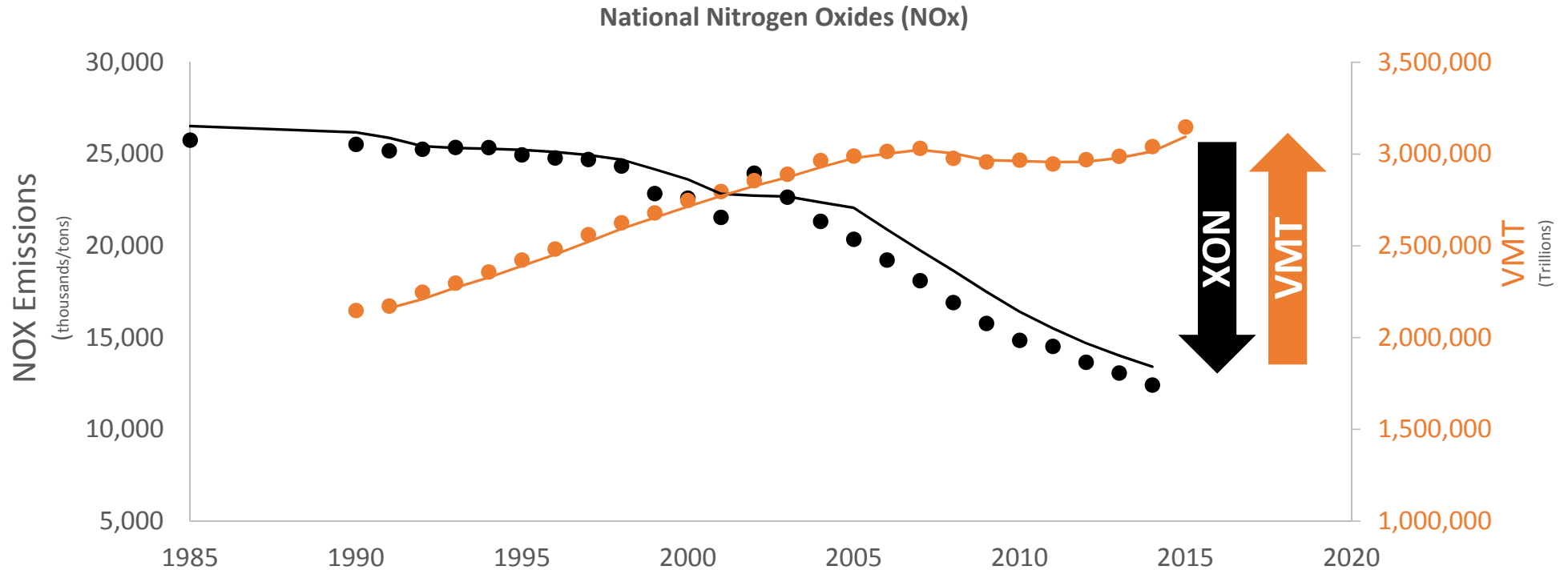
Nitrate Deposition. Nitrates deposited from the atmosphere originate from automobile emissions generated within the Basin and from sources upwind of the Basin. Nitrates contribute to algal growth which affects the clarity of Lake Tahoe. The corresponding threshold is to:

Reduce the transport of nitrates into the Basin and reduce oxides of nitrogen (NO_x) produced in the Basin consistent with the water quality thresholds

POLICY: It shall be the policy of the TRPA Governing Board in the development of the Regional Plan to reduce vehicle miles of travel in the Basin by 10 percent of the 1981 base year values.

1. Basis for Recommendation. Initial studies have shown that airborne sources of nitrate contribute significant quantities of this element to the lake and land surfaces. In order to attain the water quality thresholds, a reduction in atmospheric deposition of inorganic nitrogen will be required.

National Trends



Since 1990 NOx emissions have decreased by 51%, while VMT have increase by 47%

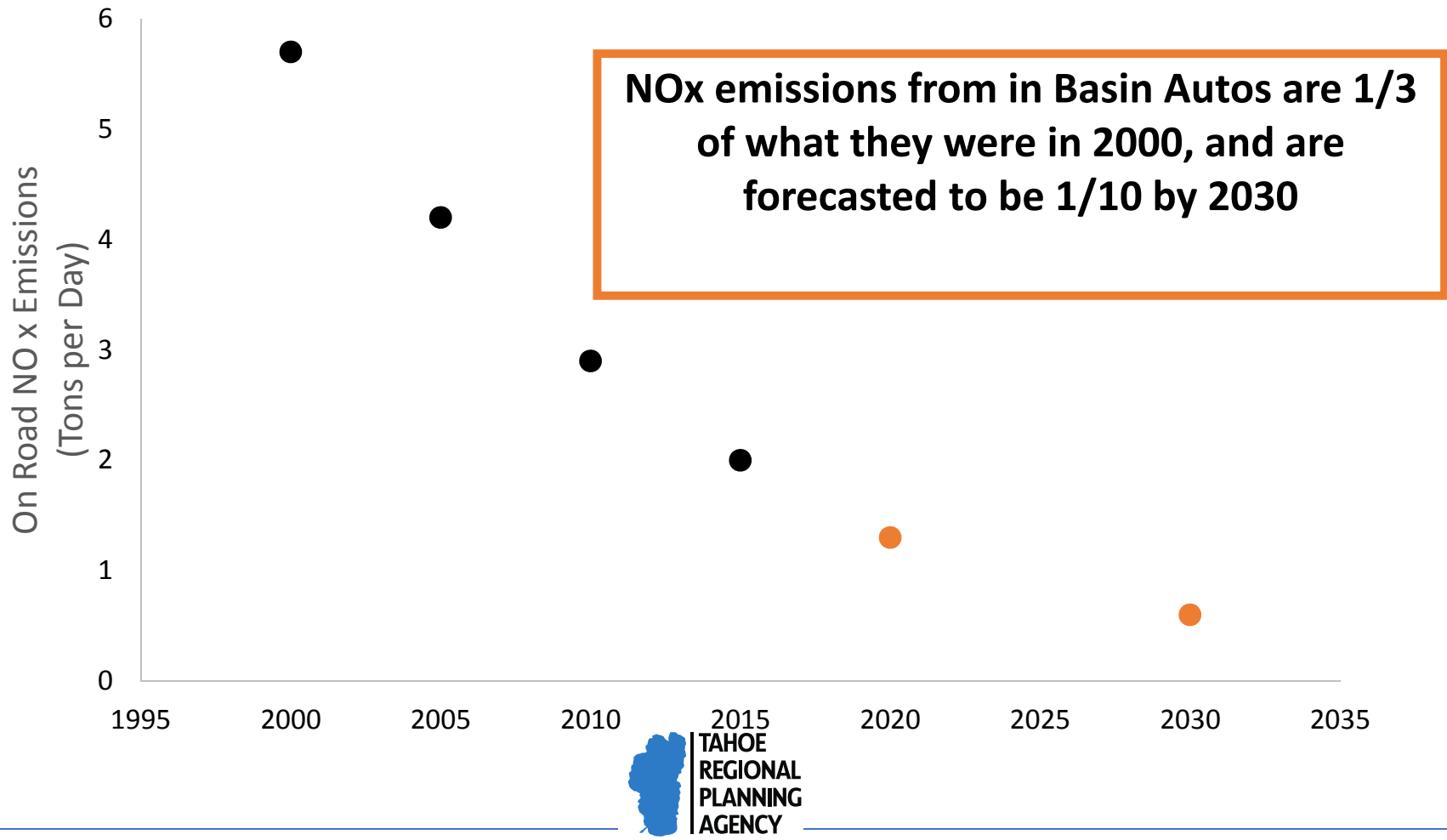
Sources:

NOx - EPA <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>

VMT - FHA https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm A Voice for Lake Tahoe

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NOx Emissions Tahoe Basin (Autos)



Source: <https://www.arb.ca.gov/ei/maps/basins/ablmap.htm> for Lake Tahoe

Vehicle Emissions

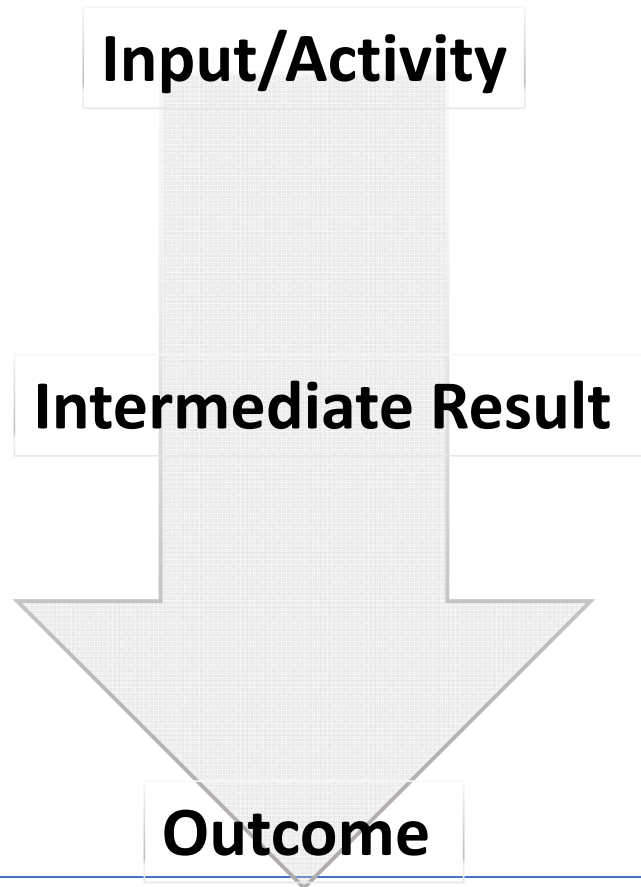
Cleaner Cars, Trucks, and Fuels

Compared to 1970 vehicle models, new cars, SUVs and pickup trucks are roughly 99 percent cleaner for common pollutants (hydrocarbons, carbon monoxide, nitrogen oxides and particle emissions). New heavy-duty trucks and buses are roughly 99 percent cleaner than 1970 models.



<https://www.epa.gov/air-pollution-transportation/accomplishments-and-success-air-pollution-transportation>

Lake Clarity: NO_x



1982

Mass transit, mail delivery,
Ride-sharing, inspections
Emission standards

VMT

Improved Lake
Clarity

2017

Land-use, Trip reduction,
Reduced emission per mile

NO_x Emissions
NO_x Deposition

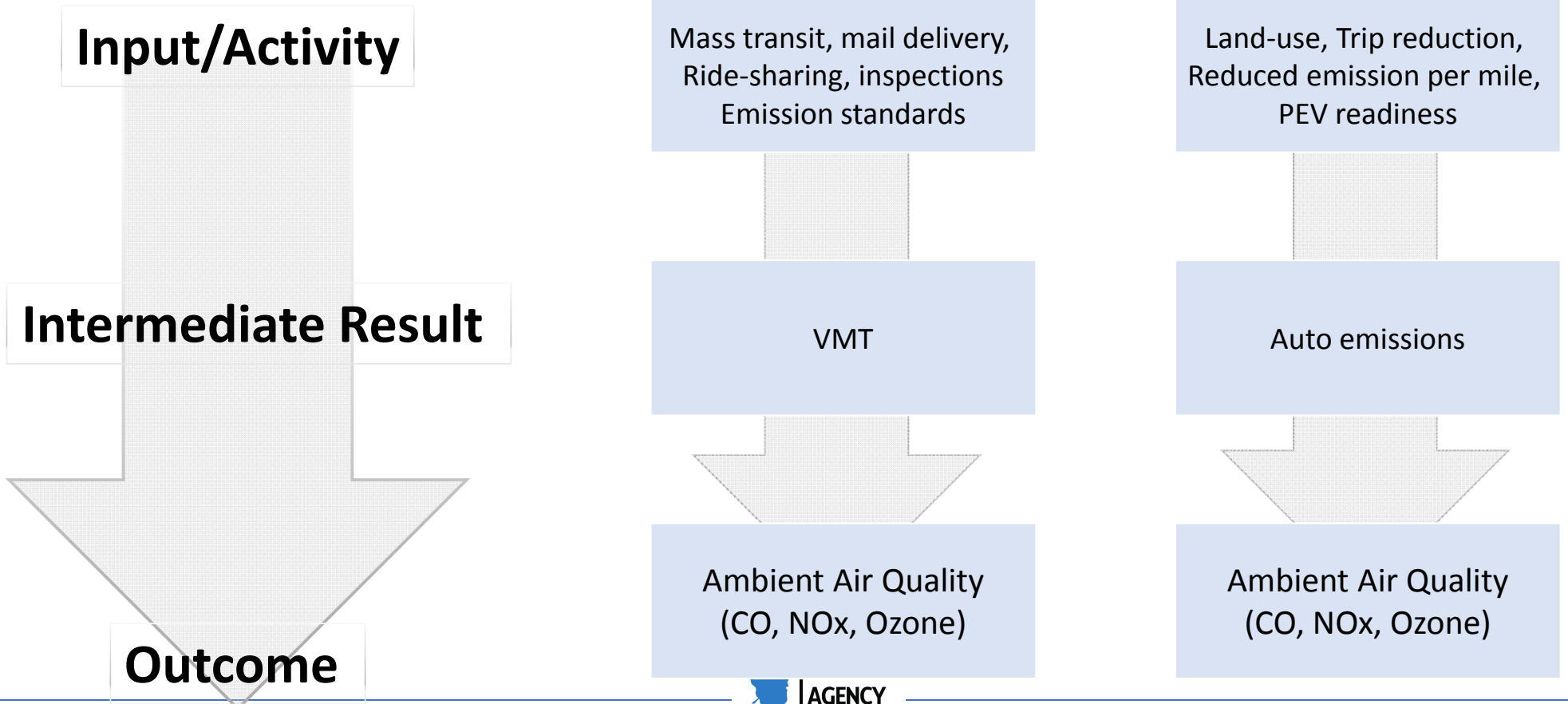
Improved Lake
Clarity

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Air Quality: Mobile Sources 1982

2017



Next Steps



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Types of measures

Input/Activity

Ex. Miles is street sweeping



Intermediate Result

Reduced pollutant load



Outcome

Improved Lake Clarity



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Gaps

Outcomes

Intermediate Measures (Partial List)

Congestion

Non- Auto

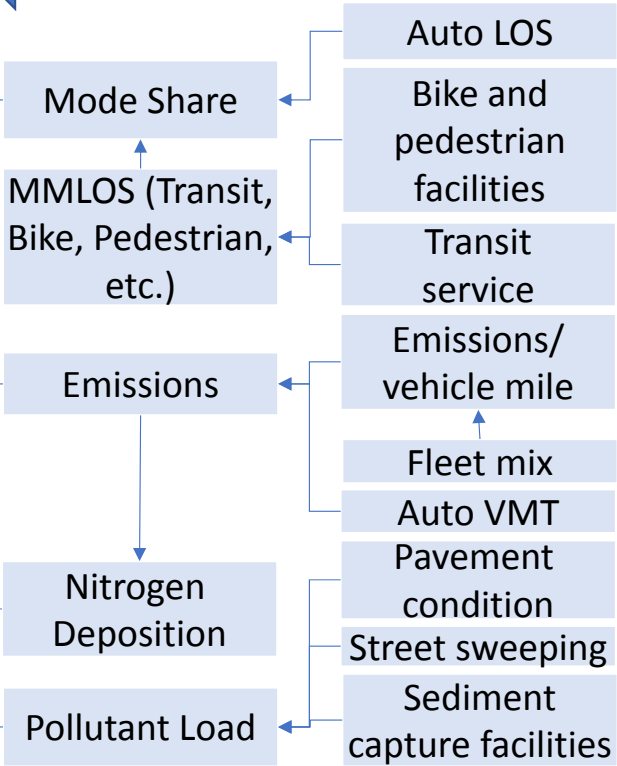
Quality of Life

Environment

Reduce reliance on the automobile

Meet Ambient Air Quality Standards (CO, NOx, Ozone), Reduce GHG

Water Quality Standards



Next Steps

- Draft White Paper to APC – July 12, 2017
- Final White Paper to APC – August 9, 2017
- Final White Paper to GB – August 23, 2017



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THANK YOU

AGENDA ITEM NO. V.A.