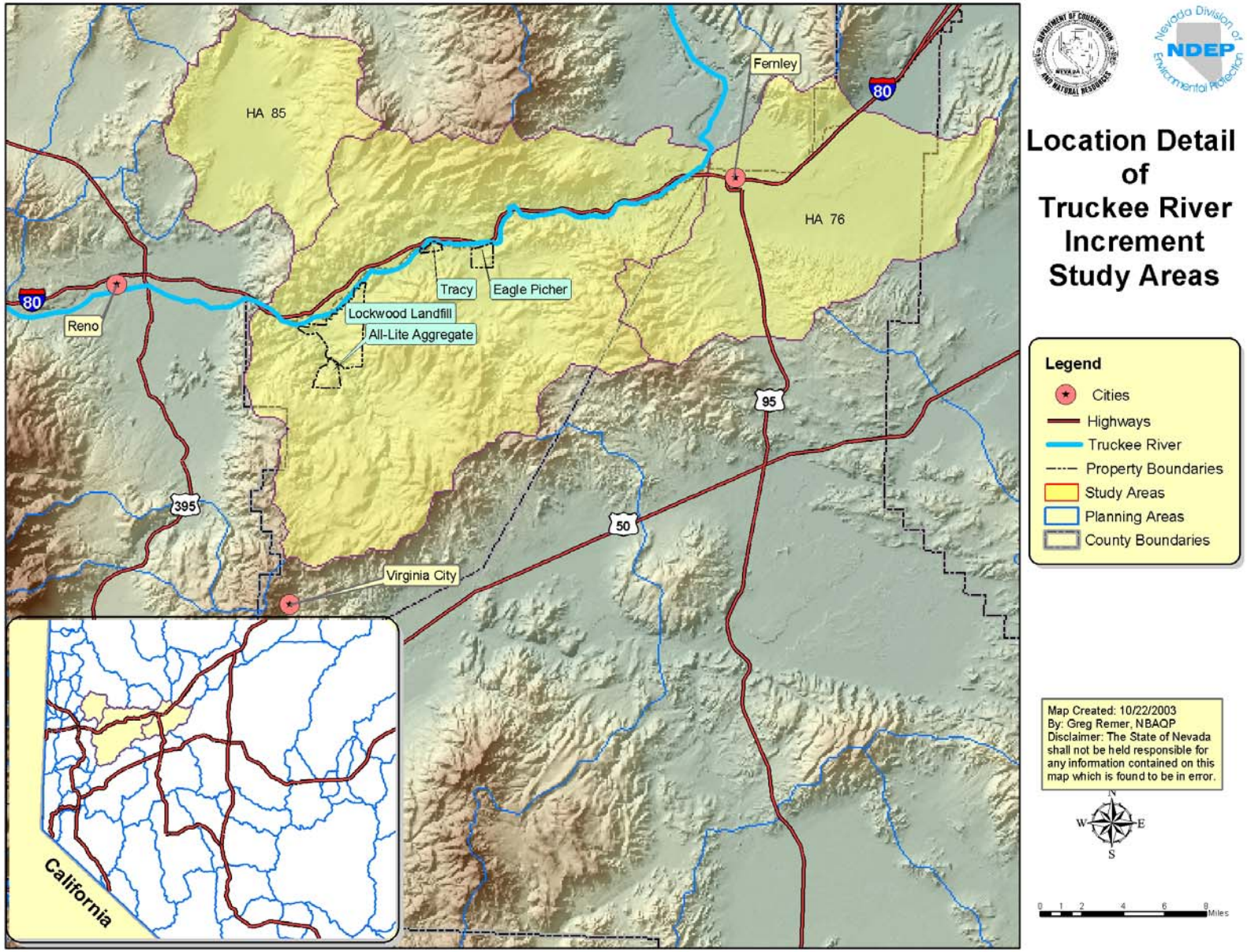
Truckee Corridor Study Areas

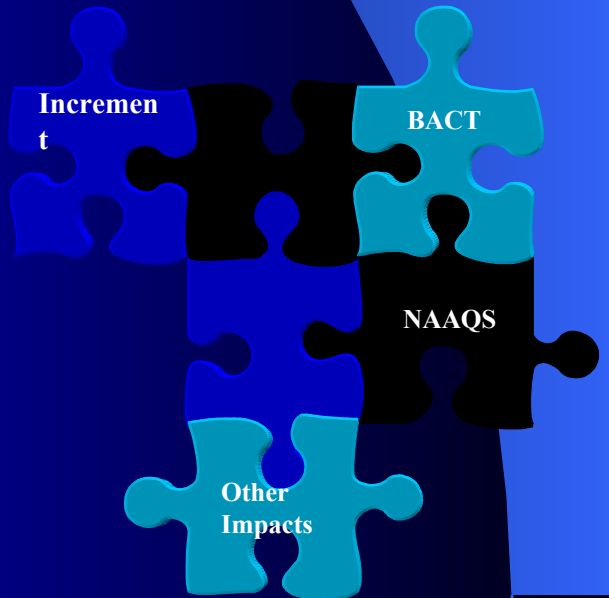


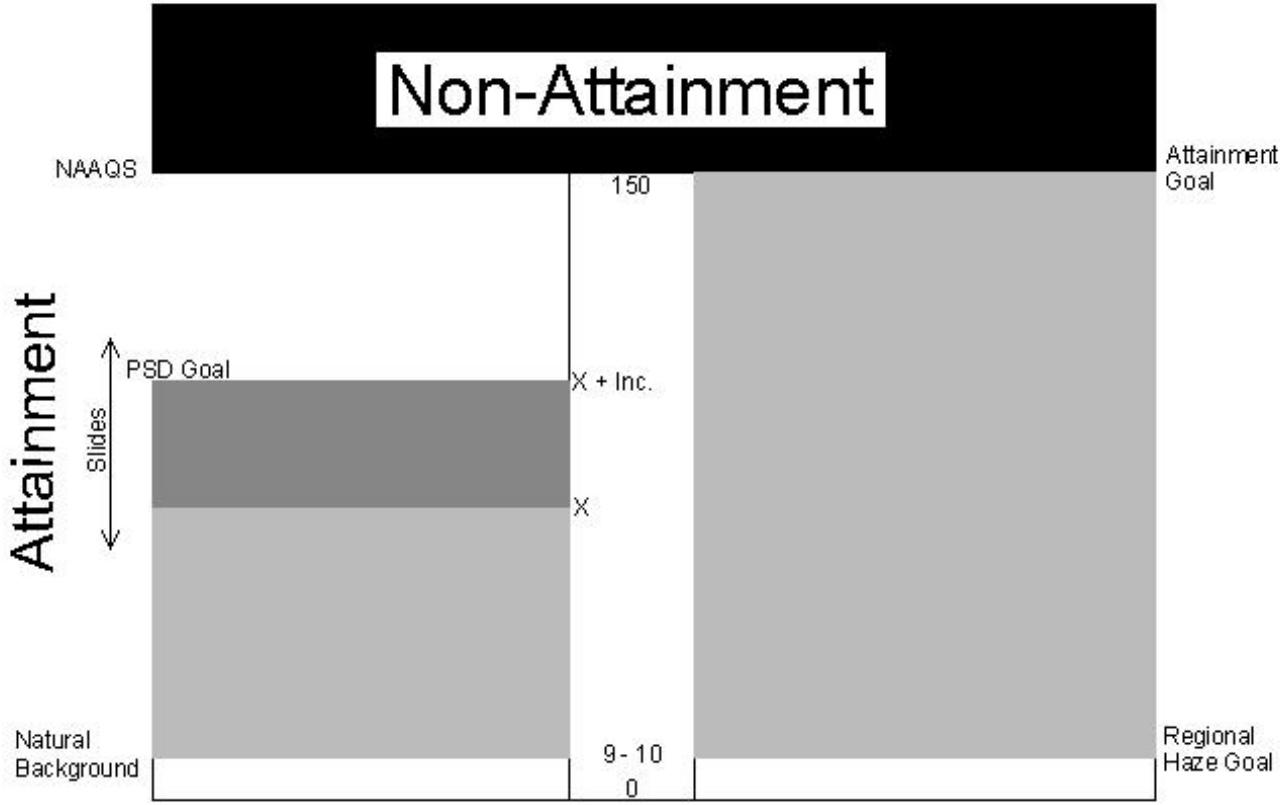
Introduction

- Original Workshop (November 1999)
  - Significant Growth
  - Additional Potential for Growth
  - Need for Future Planning
- Much of the analysis is complete and we are here to present the results

Background

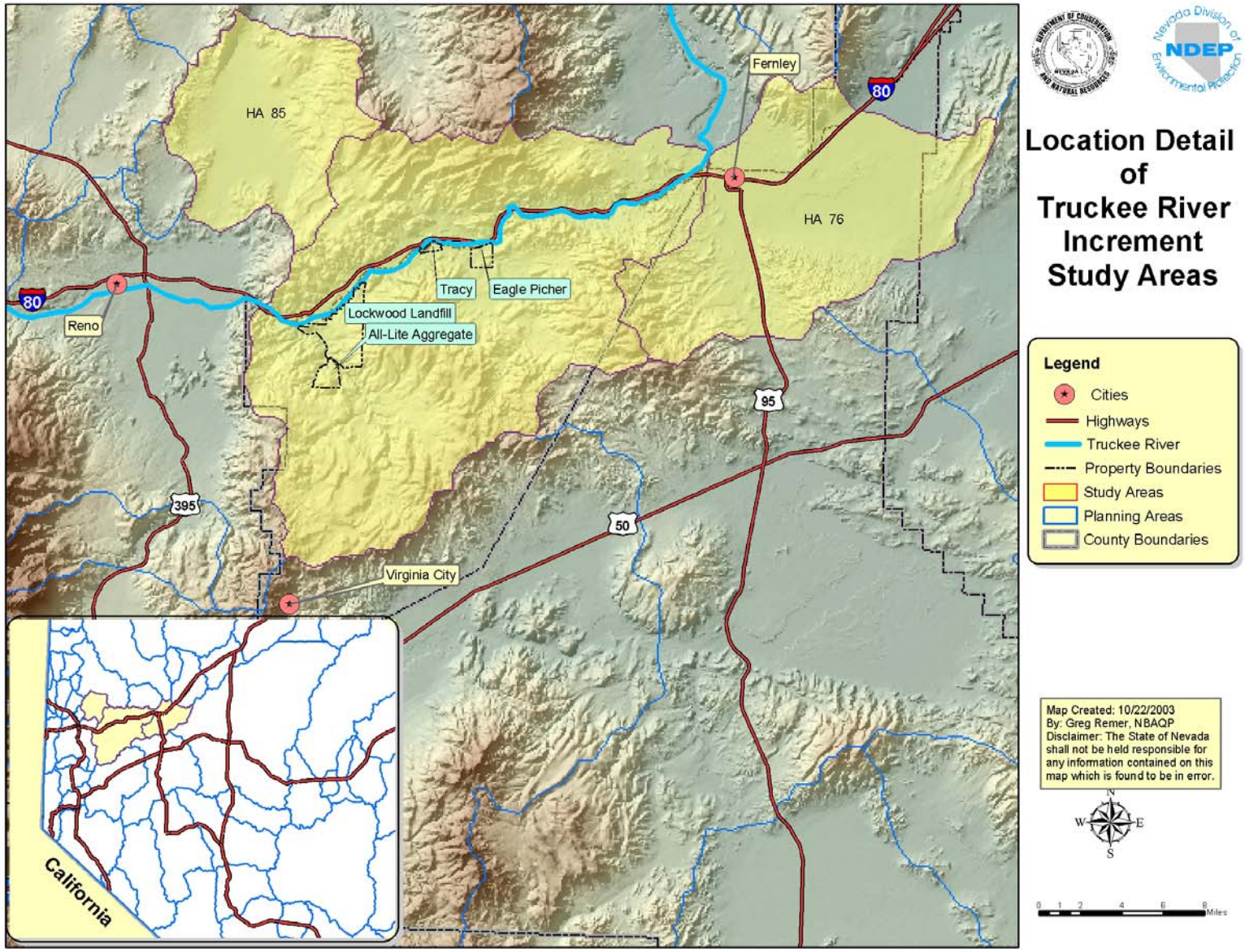
- PSD is a federal requirement and stands for "Prevention of Significant Deterioration"
- Increment is a component of the PSD program
- Increment standards are changes in concentration above what's already there when a large source submits an application




Non-Attainment
NAAQS
Attainment Goal
150
Attainment
PSD Goal
Slides
X + Inc.
X
Natural Background
9 - 10
0
Regional Haze Goal

107(d) Planning Areas

Truckee Corridor Study Areas



What took so long?

- Evaluation Complexities due to:
  - Two decades of increment affecting changes
  - Impacts getting closer to allowable PSD increments
    - Changes in facility configuration
    - New increment consuming sources
    - Changes in area/fugitive source emissions
  - Need for more flexibility within ITS

Increment Study Results

Emissions Included in Analyses

- Point Sources
  - Major sources, of 100 tpy or greater, in and within 50 kilometers of the planning area
  - Industrial sources in the planning area
- Fugitive Area Sources
  - Railroad, and mobile emissions within planning area
  - Miscellaneous source emissions within planning area

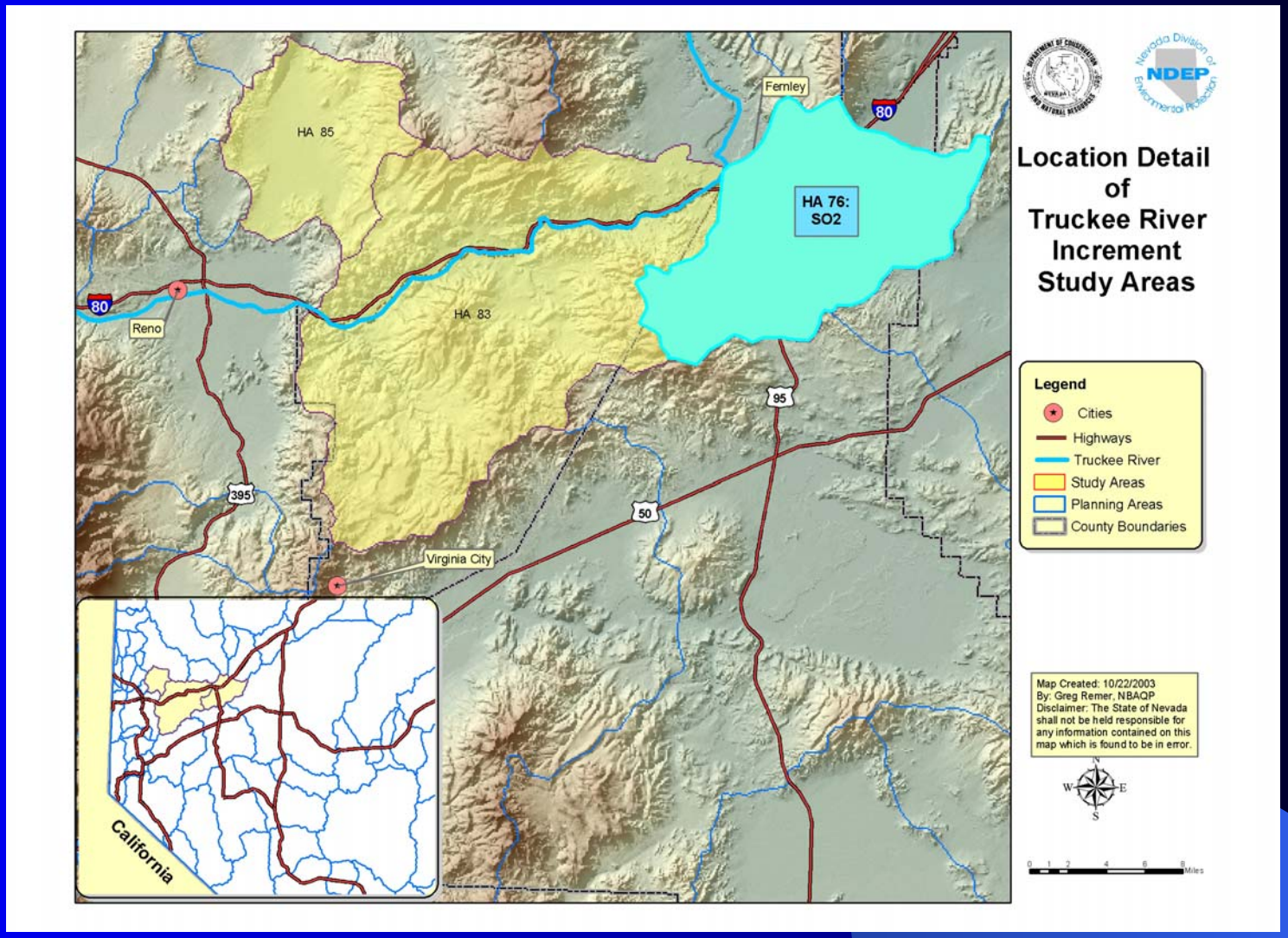
Pollutants Modeled

- Hydrographic Area 76 - SO_2
- Hydrographic Area 83 - SO_2, NO_2 and PM_{10}
- Hydrographic Area 85 - SO_2

Pollutant Averaging Periods

	Averaging Period		
Pollutant	3 Hr	24 Hr	Annual
SO_2	X	X	X
NO_2	-	-	X
PM_{10}	-	X	X

Hydrographic Area 76

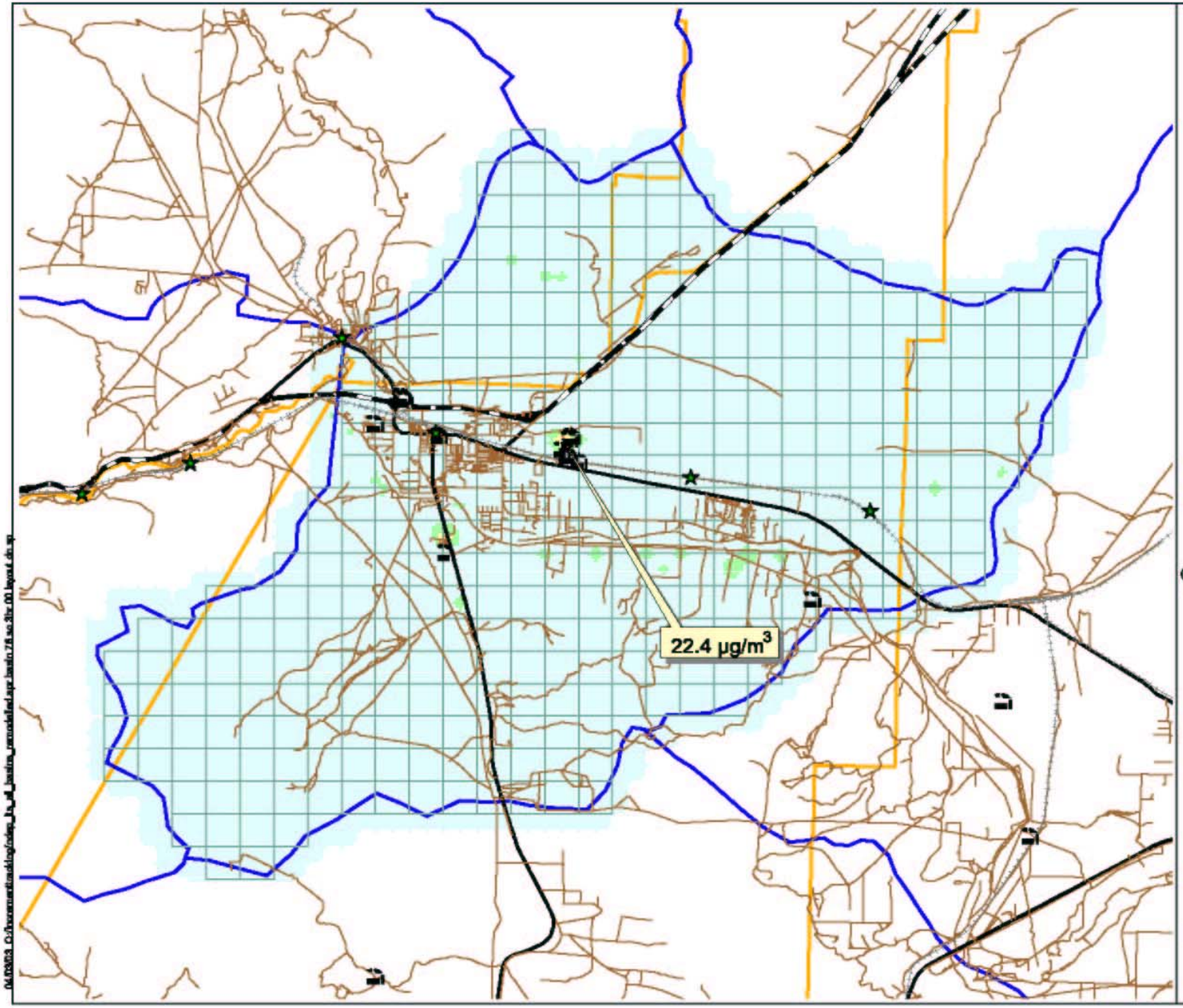


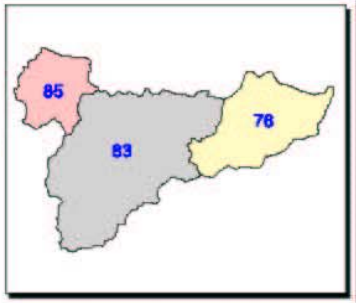
Dispersion Modeling Results

Predicted PSD Increment Impact
HA 76

Averaging Period	Predicted SO_2 Increment ($\mu g/m^3$)	SO_2 PSD Increment ($\mu g/m^3$)
3-Hour[1]	22.4	512
24-Hour[1]	6.3	91
Annual	4.6	20

[1] Value presented is highest second high value.





Location Map

Legend

- 1 - 8 µg/m^3
- 8 - 15 µg/m^3
- 15 - 22.4 µg/m^3
- Populated Place
- Facility

Scale

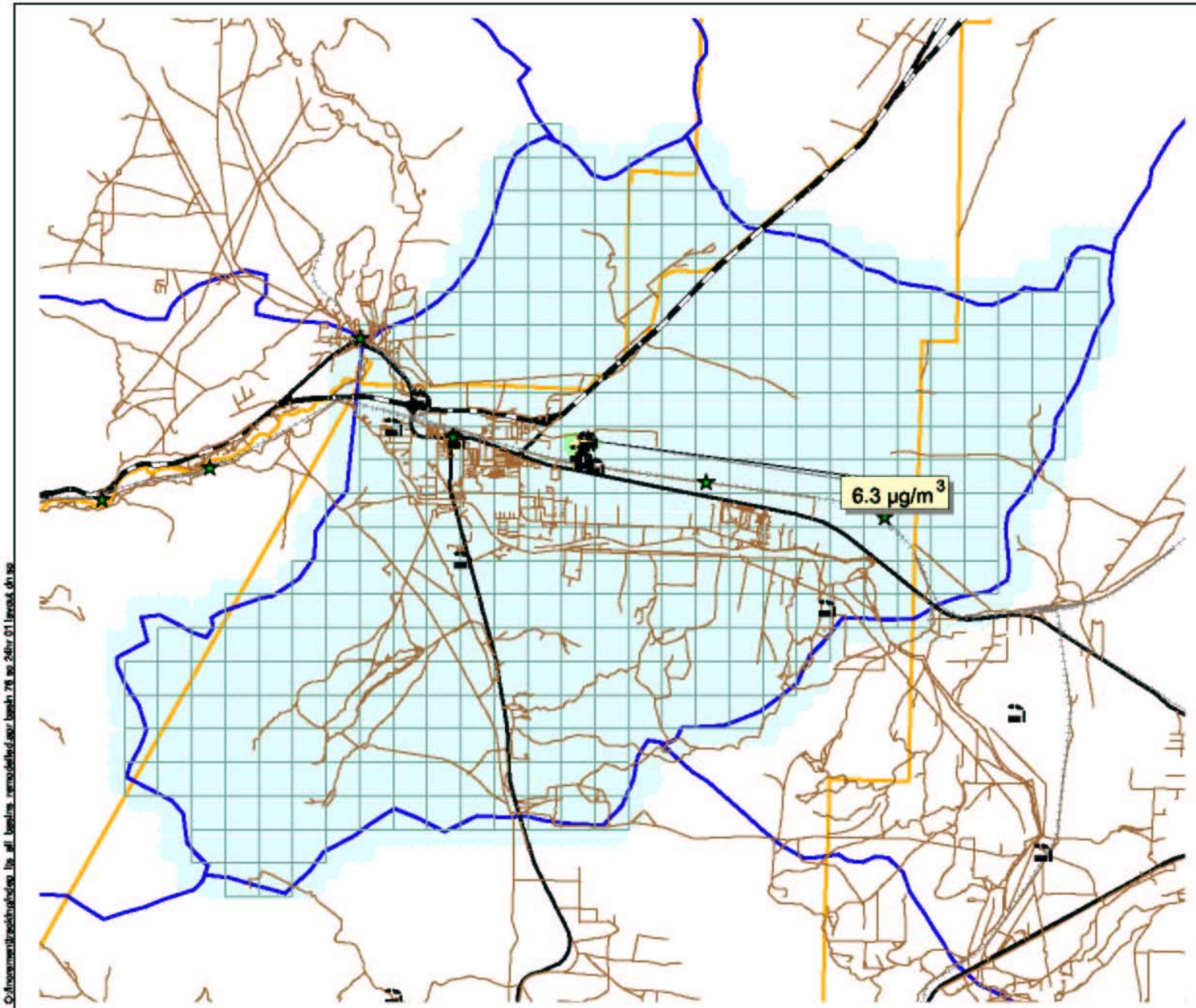
0 2 4 Miles

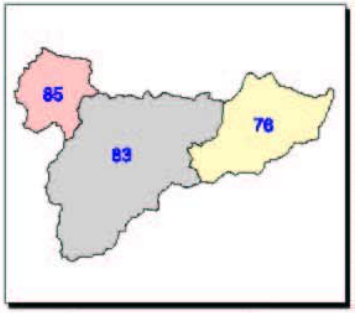
N

HA 76
High Second High
3-Hour SO_2 Increments
2000 Current/2000 Baseline
Meteorological Data
Paired in Time Analysis
Figure 4-1A

Nevada Division of
Environmental Protection
Increment Tracking System

NDEP





Location Map

Legend

- 0 - 2 µg/m3
- 2 - 4 µg/m3
- 4 - 6.3 µg/m3
- Populated Place
- Facility

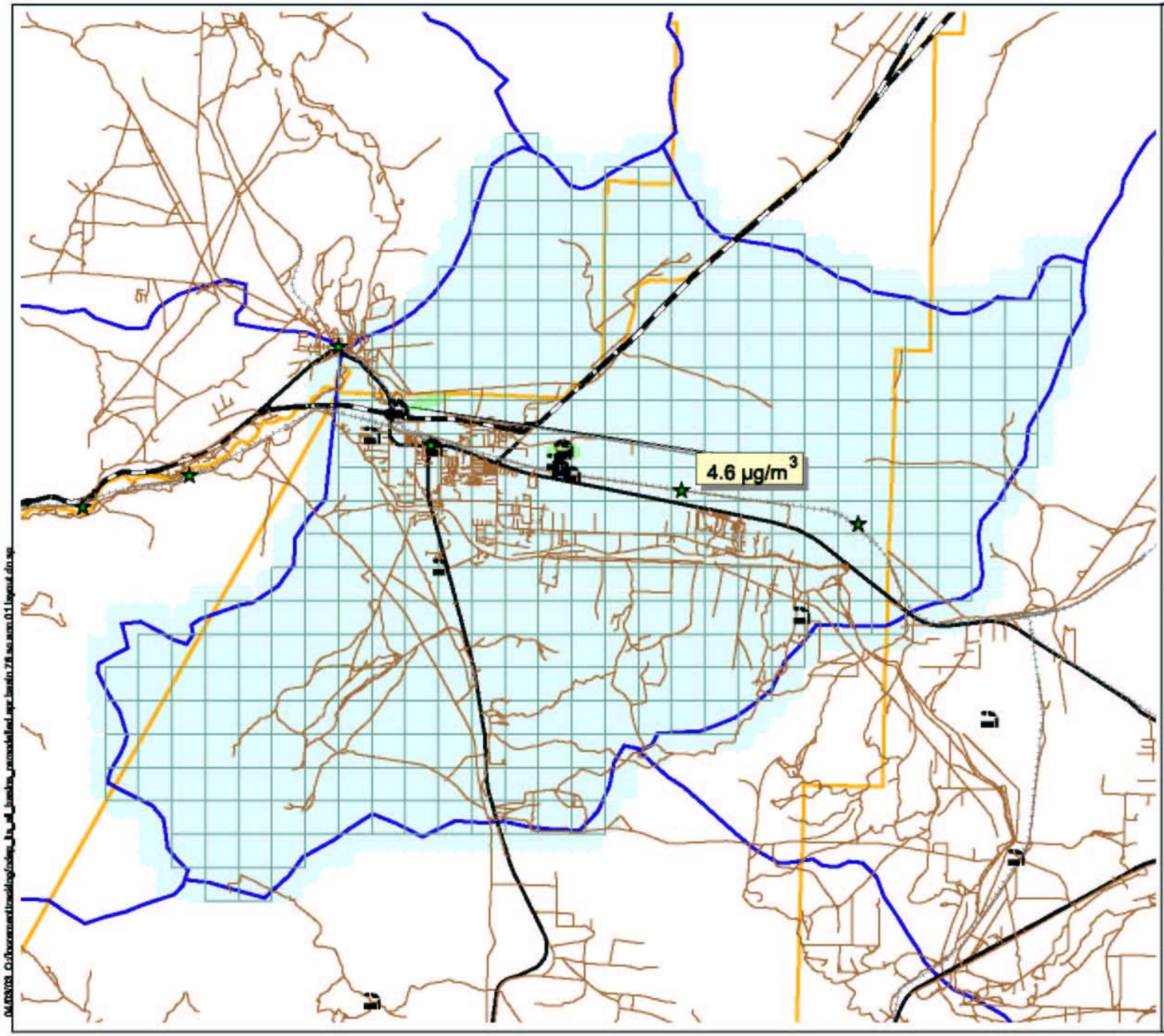
Scale

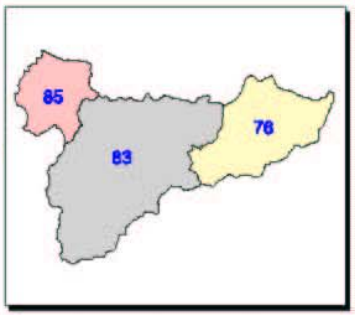
0 1 2 3 4 Miles

HA 76
High Second High
24-Hour SO_2 Increments
2001 Current/2001 Baseline
Meteorological Data
Paired in Time Analysis
Figure 4-2B

Nevada Division of
Environmental Protection
Increment Tracking System

NDEP





Location Map

Legend

- -5 - 0 µg/m^3
- 0 - 2 µg/m^3
- 2 - 4.6 µg/m^3
- Populated Place
- Facility

Scale

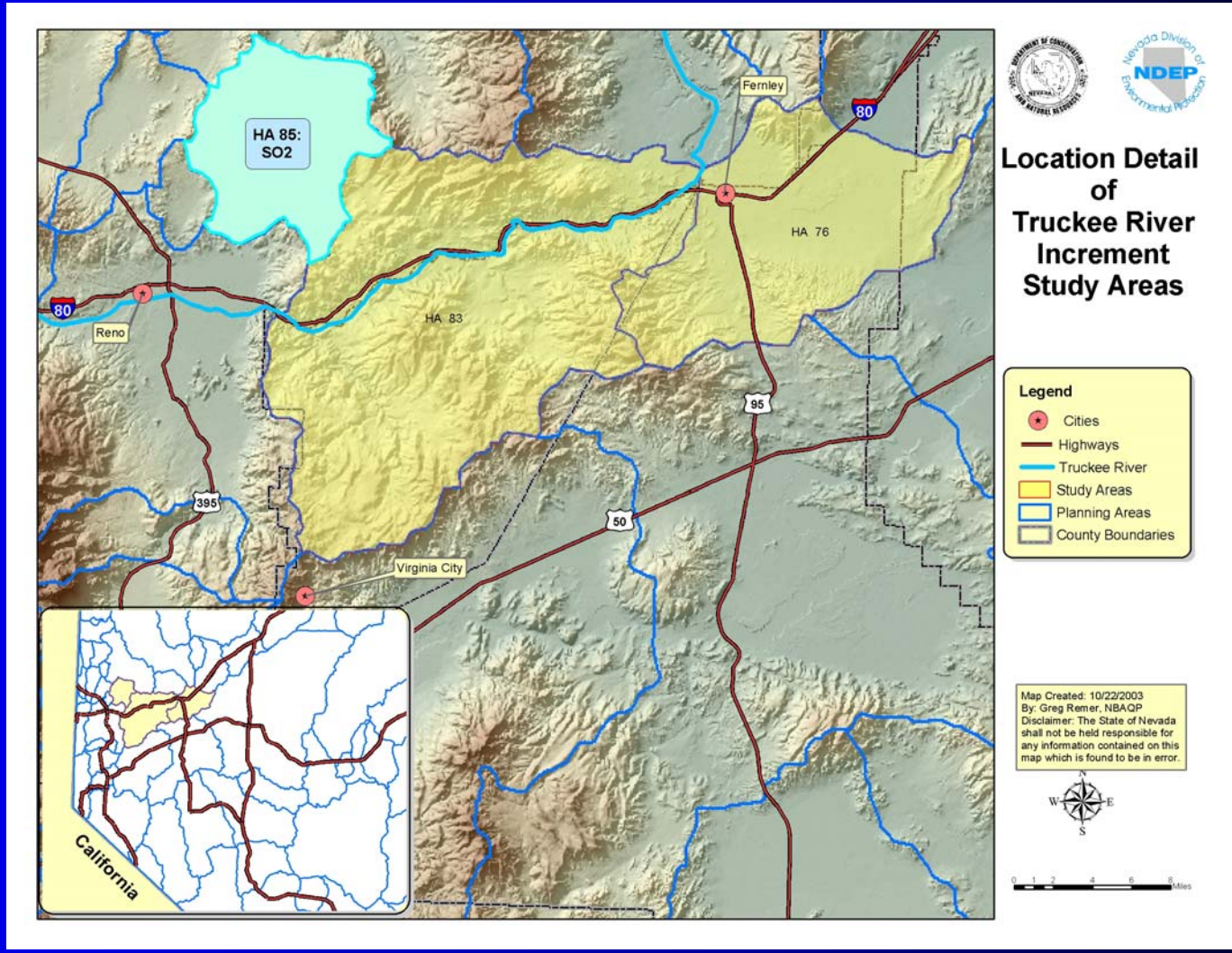
0 2 4 Miles

HA 76
Maximum
Annual SO_2 Increments
2001 Current/2001 Baseline
Meteorological Data
Paired in Time Analysis
Figure 4-3B

Nevada Division of
Environmental Protection
Increment Tracking System

NDEP

Hydrographic Area 85

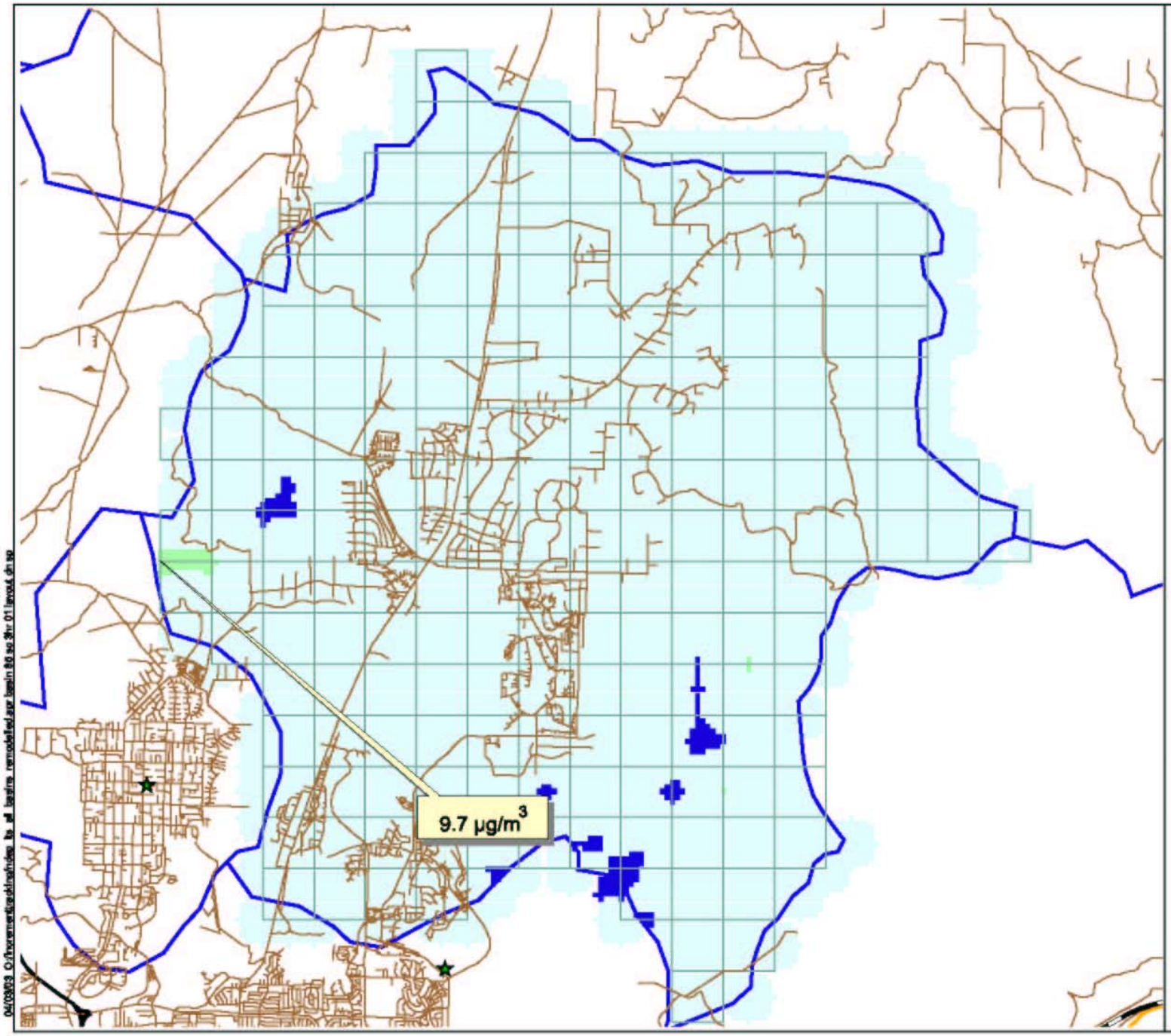


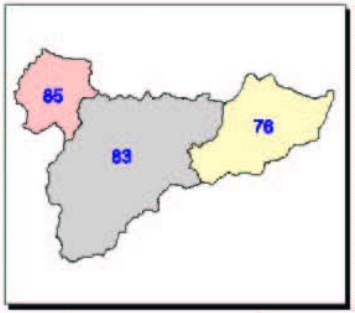
Modeling Results

Predicted PSD Increment Impact
HA85 SO_2

Averaging Period	Predicted SO_2 Increment ($\mu g/m^3$)	SO_2 PSD Increment ($\mu g/m^3$)
3-Hour[1]	9.7	512
24-Hour[1]	3.1	91
Annual	-0.01	20

[1] Value presented is highest second high value.





Location Map

Legend

- -260 - -130 µg/m^3
- -130 - 0 µg/m^3
- 0 - 9.7 µg/m^3
- Populated Place
- Facility

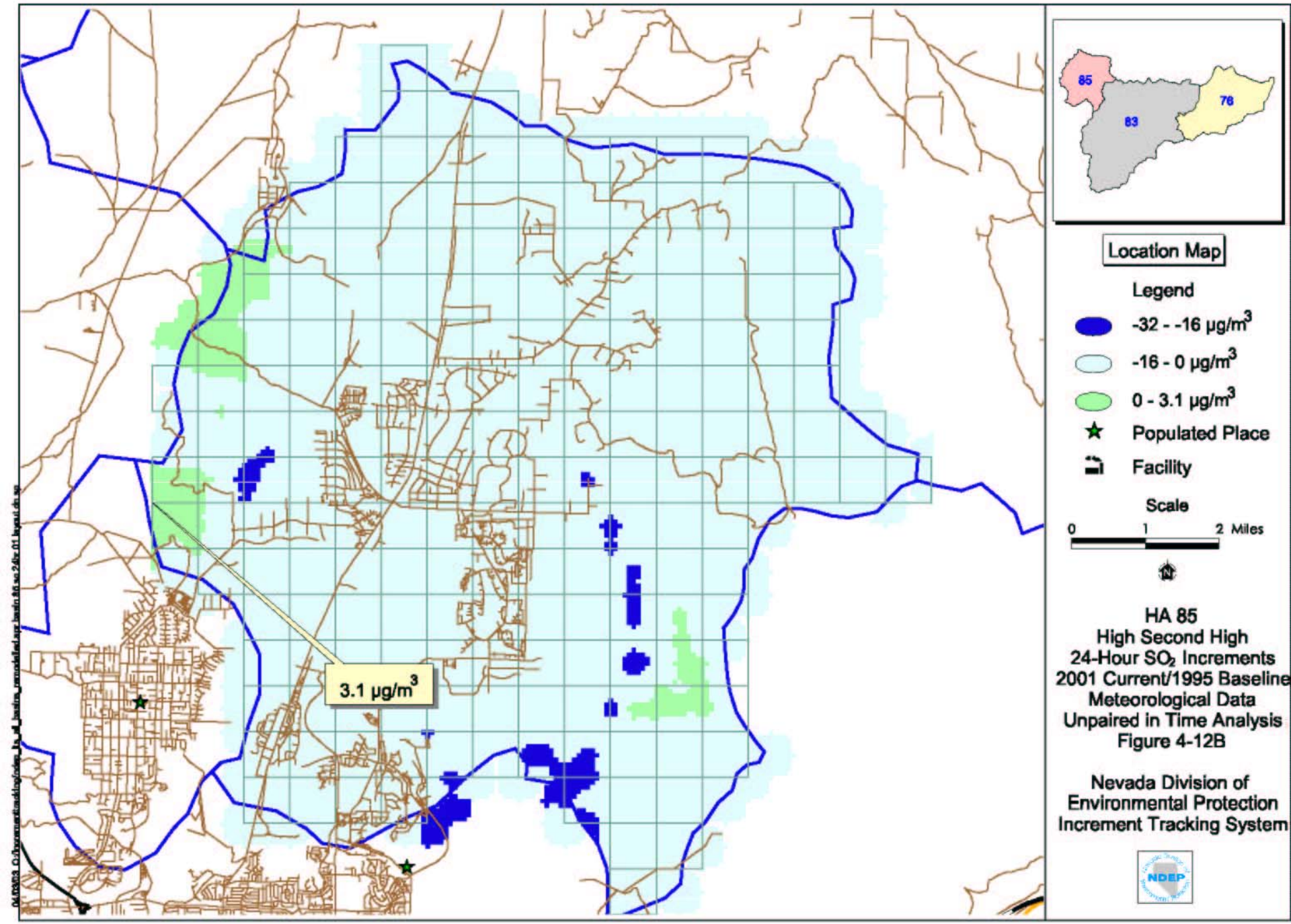
Scale

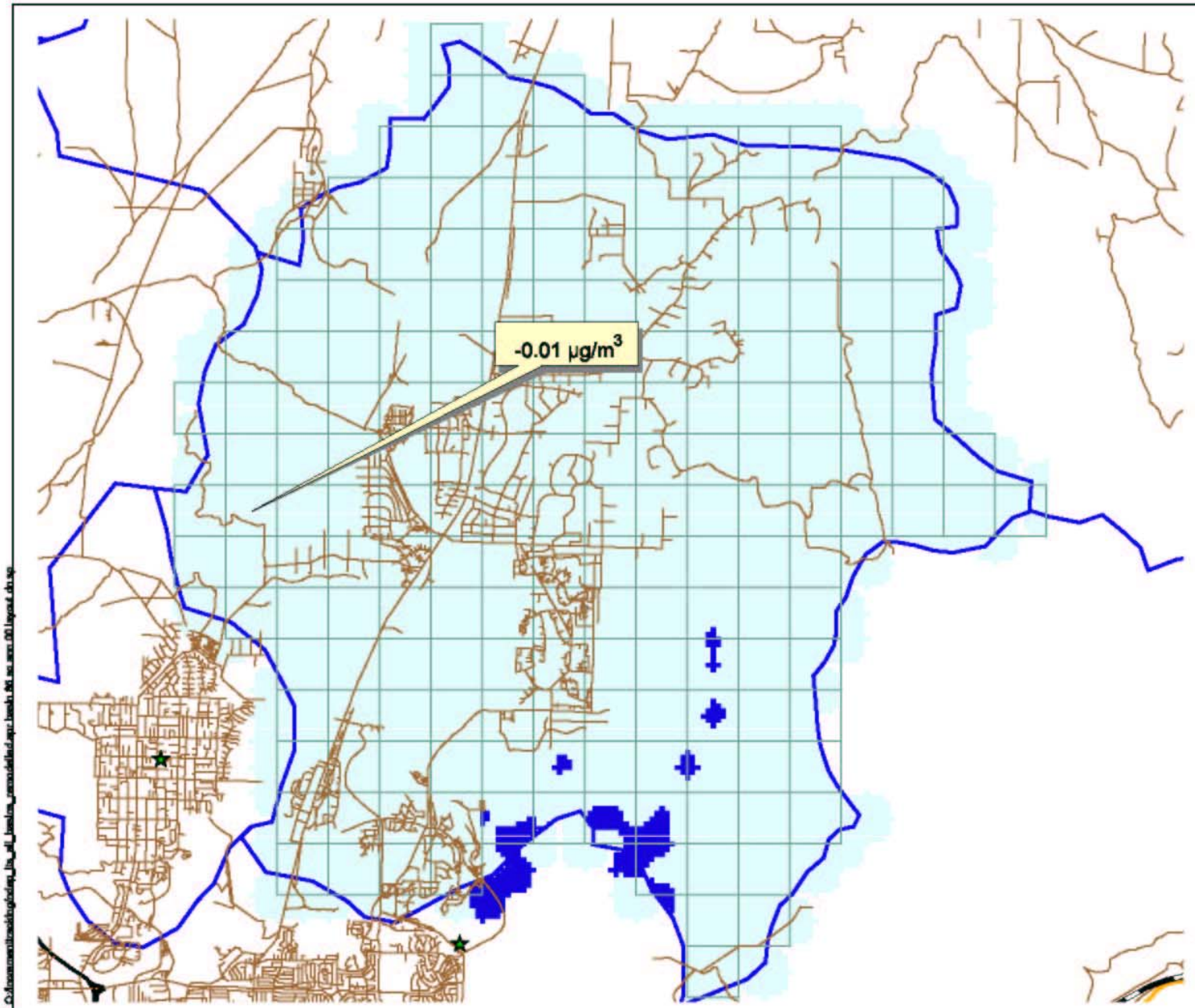
0 1 2 Miles

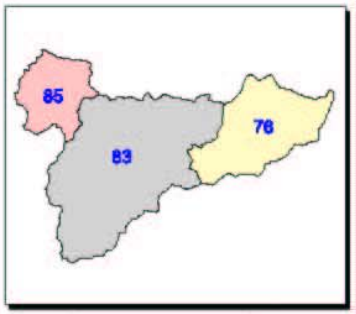
HA 85
High Second High
3-Hour SO_2 Increments
2001 Current/1995 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-11B

Nevada Division of
Environmental Protection
Increment Tracking System

NDEP


85
83
78
Location Map
Legend
-32 - -16 µg/m3
-16 - 0 µg/m3
0 - 3.1 µg/m3
Populated Place
Facility
Scale
0
1
2 Miles
3.1 µg/m3
HA 85
High Second High
24-Hour SO2 Increments
2001 Current/1995 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-12B
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP





Location Map

Legend

- -3.6 - -1.8 µg/m3
- -1.8 - -0.01 µg/m3
- Populated Place
- Facility

Scale

0 1 2 Miles

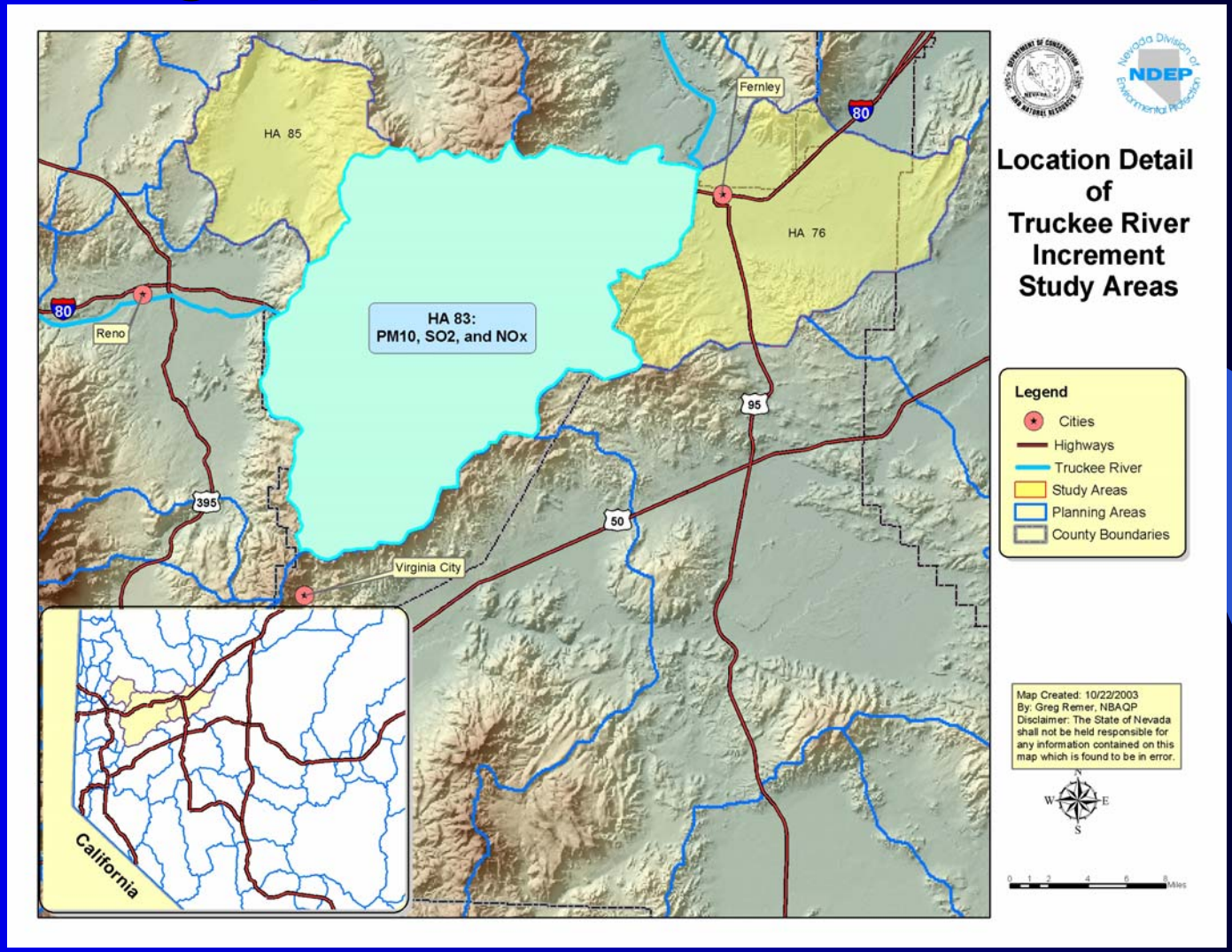
N

HA 85
Maximum
Annual SO_2 Increments
2000 Current/1995 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-13A

Nevada Division of
Environmental Protection
Increment Tracking System

NDEP

Hydrographic Area 83

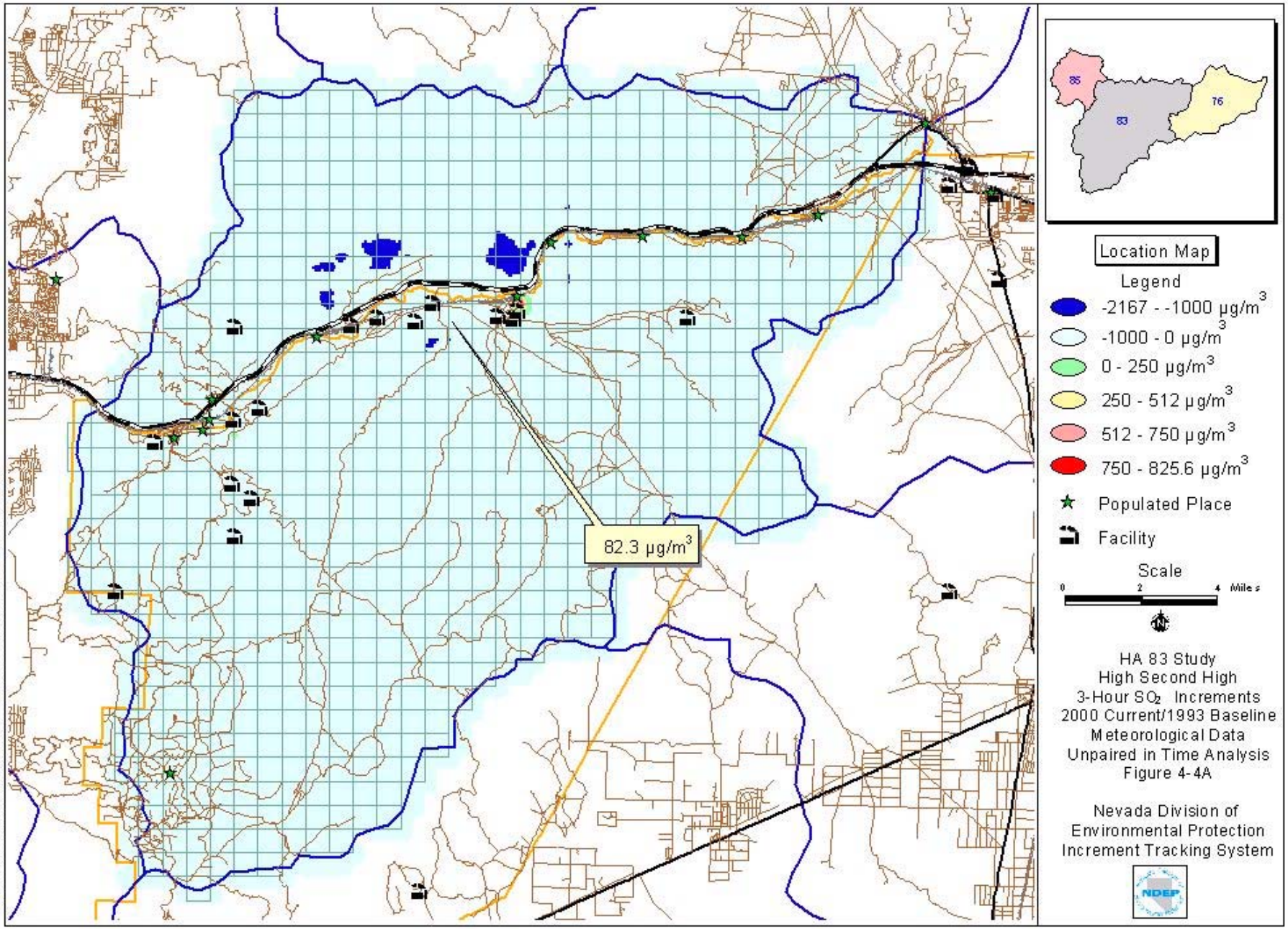


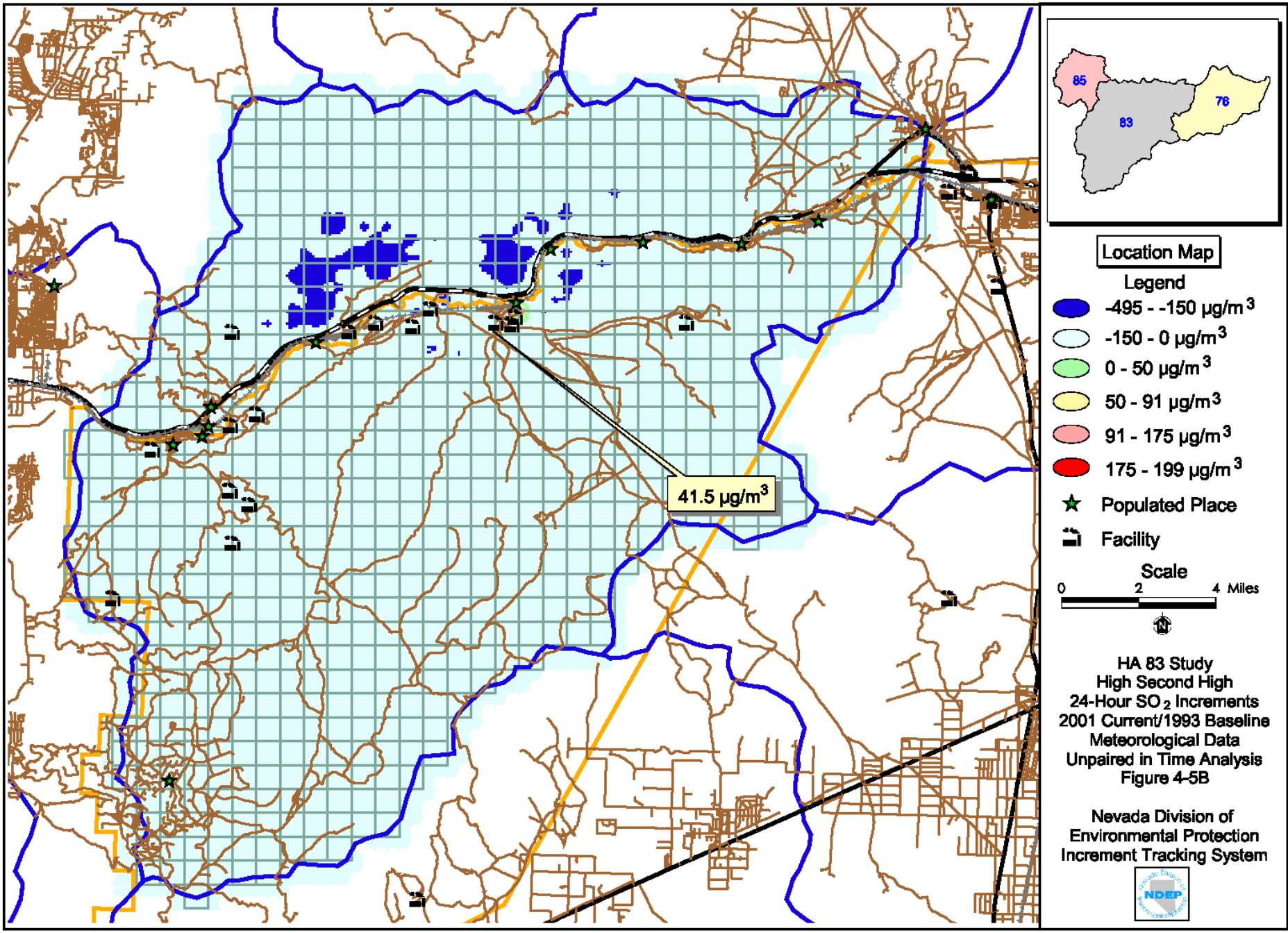
Modeling Results

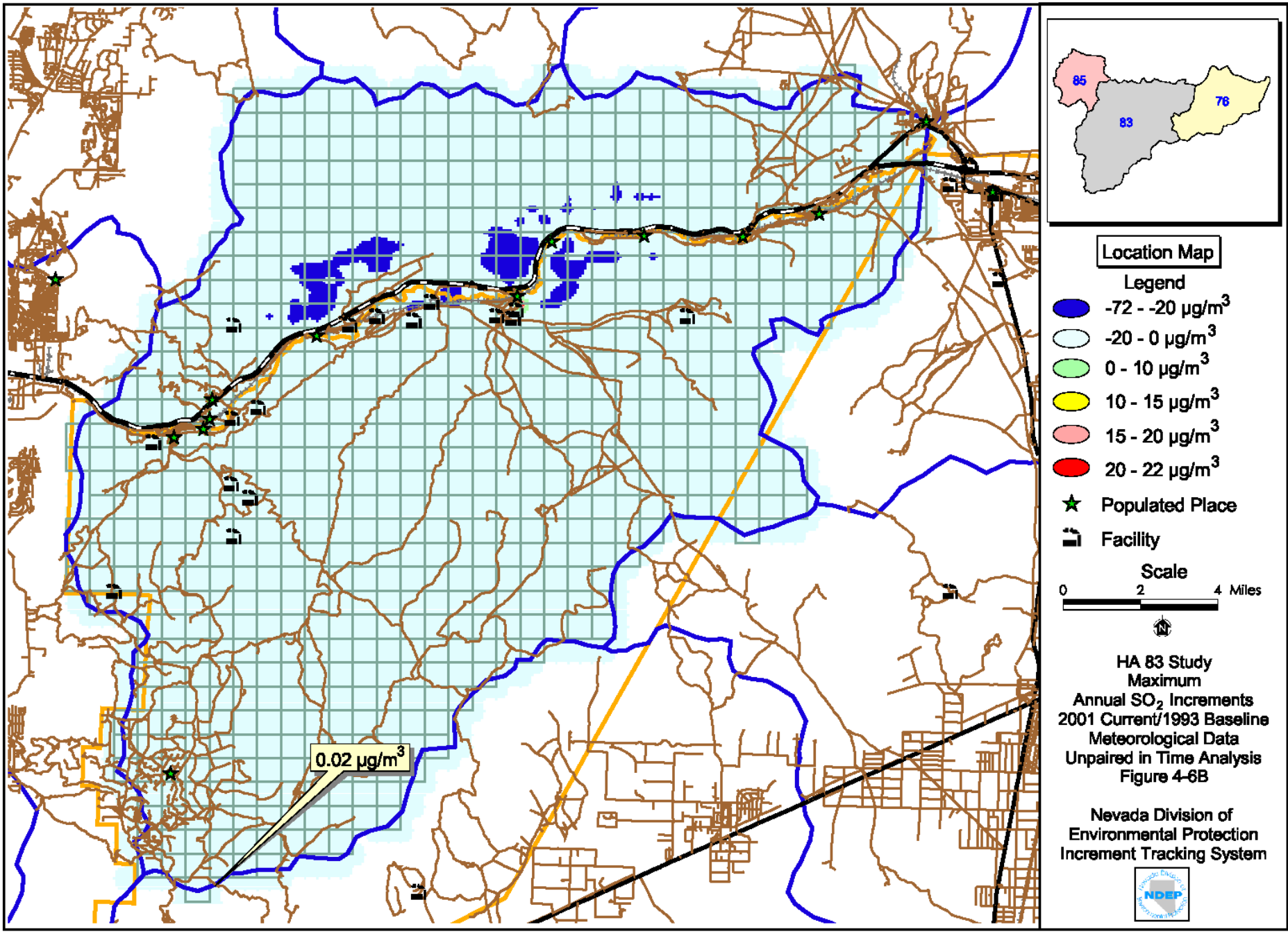
Predicted PSD Increment Impact HA83 SO_2, PM_{10}, and NO_2

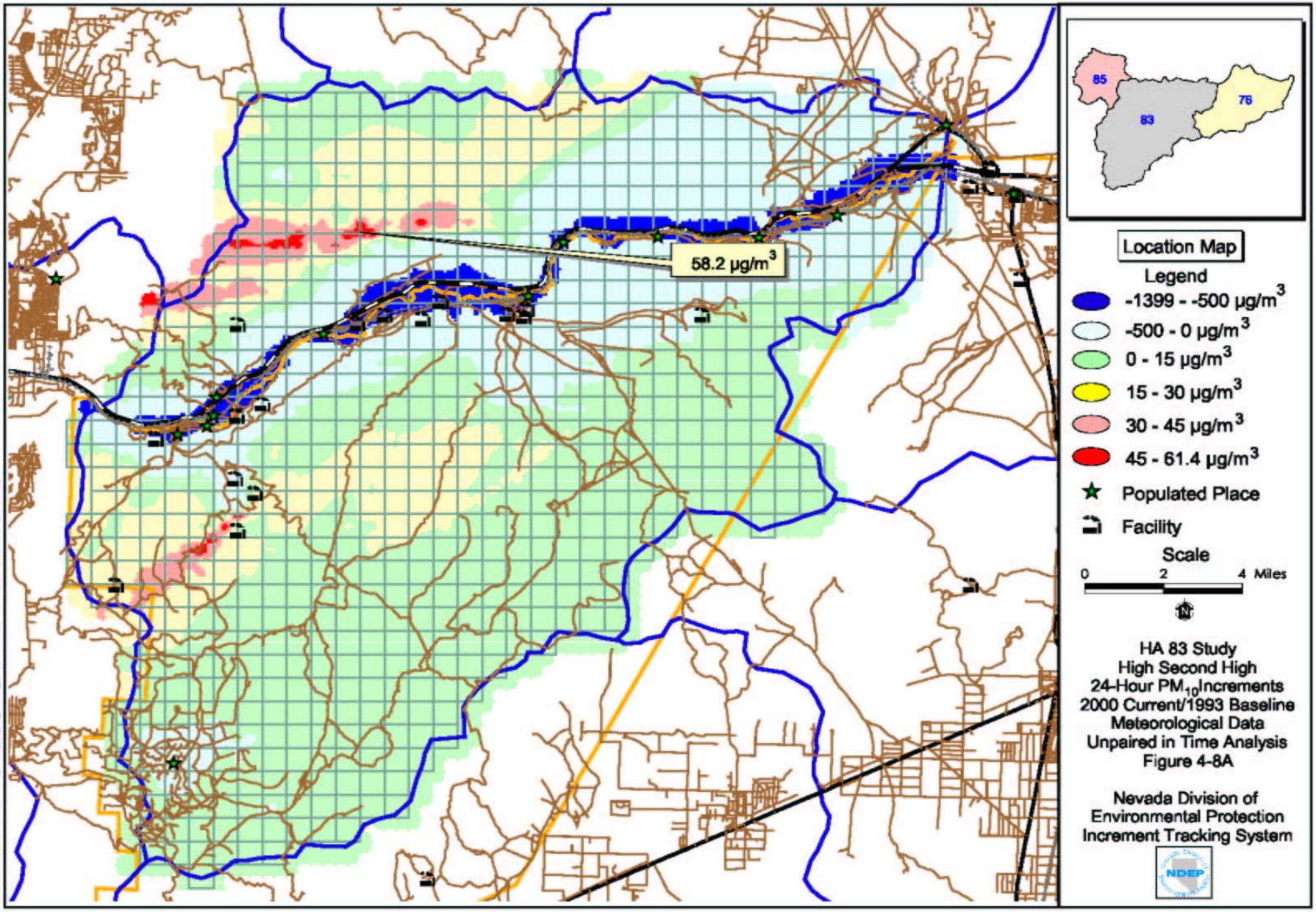
Pollutant	Averaging Period	Predicted Increment ($\mu g/m^3$)	PSD Increment ($\mu g/m^3$)
SO_2	3-Hour[1]	82.3	512
	24-Hour[1]	41.5	91
	Annual	0.02	20
PM_{10}	24-Hour[1]	**58.2**	30
	Annual	***16.7***	17
NO_2	Annual	**34.1**	25

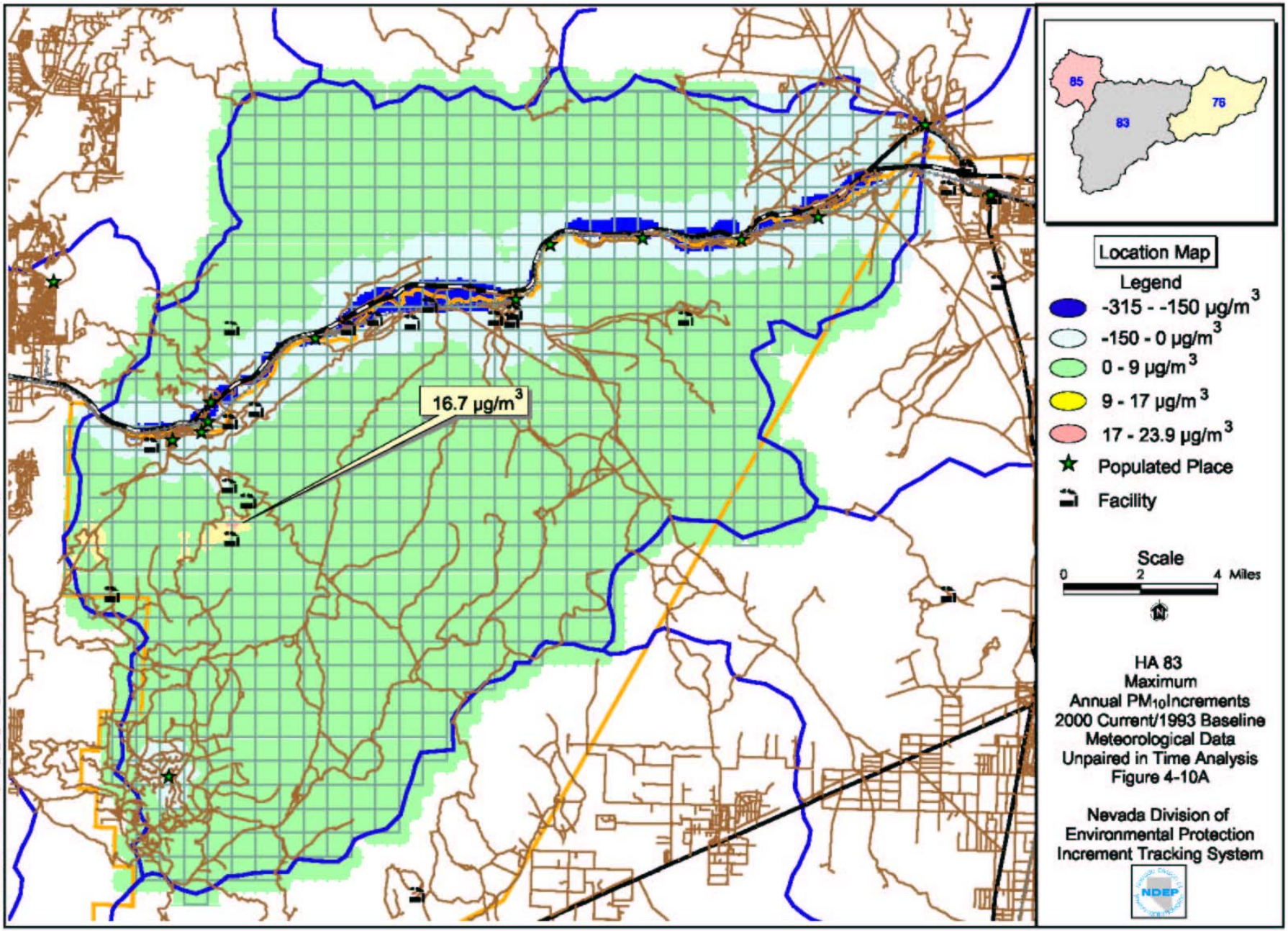
[1] Value presented is Highest second high value.
[2] NO_2 results are based on screening level conversion factor of 0.75 to convert NO_x to NO_2.

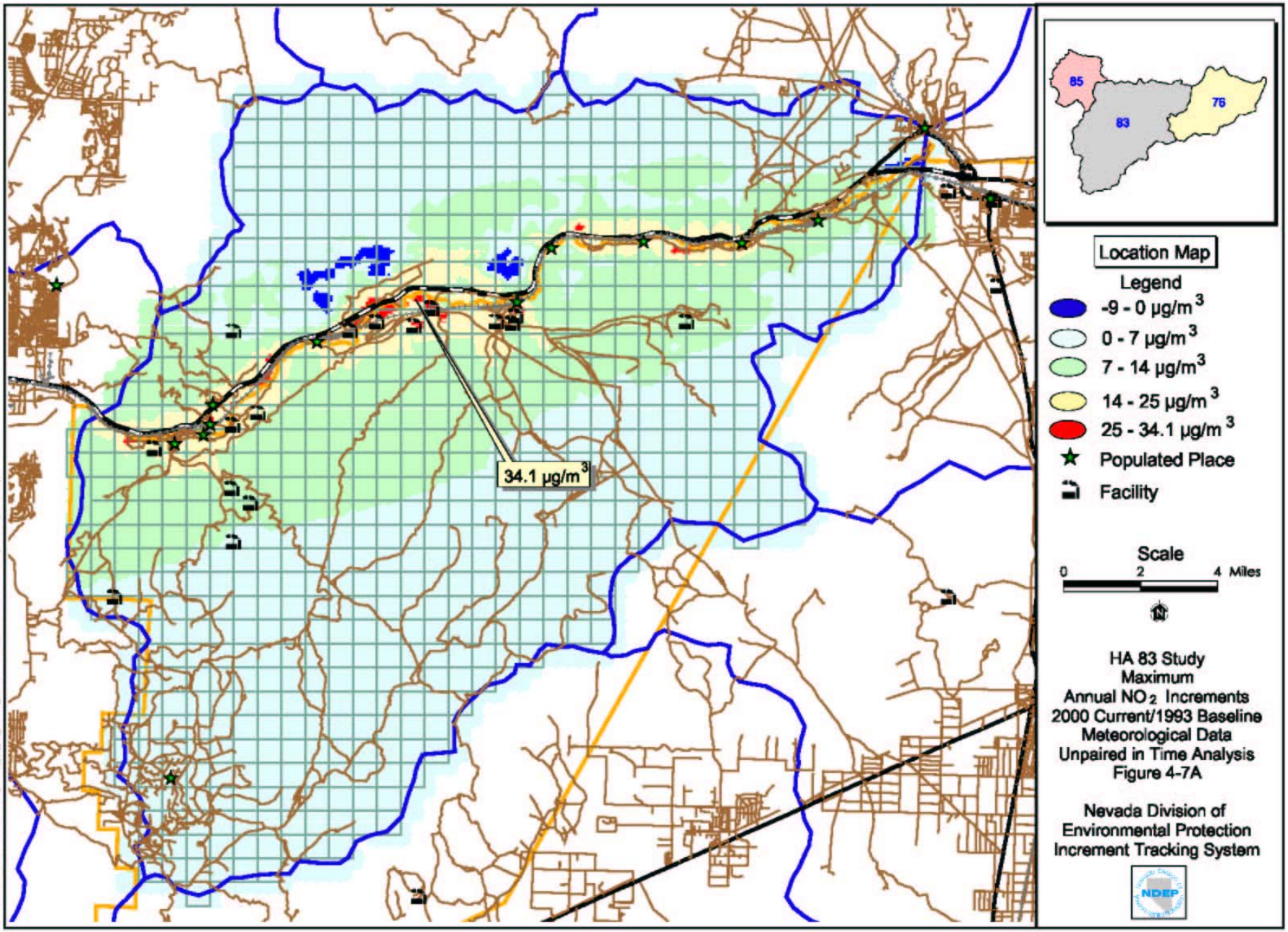

86
83
76
Location Map
Legend
-2167 - -1000 µg/m3
-1000 - 0 µg/m3
0 - 250 µg/m3
250 - 512 µg/m3
512 - 750 µg/m3
750 - 825.6 µg/m3
Populated Place
Facility
82.3 µg/m3
Scale
0
2
4
Miles
N
HA 83 Study
High Second High
3-Hour SO2 Increments
2000 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-4A
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP


41.5 µg/m3
85
83
76
Location Map
Legend
-495 - -150 µg/m3
-150 - 0 µg/m3
0 - 50 µg/m3
50 - 91 µg/m3
91 - 175 µg/m3
175 - 199 µg/m3
Populated Place
Facility
Scale
0
2
4 Miles
N
HA 83 Study
High Second High
24-Hour SO2 Increments
2001 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-5B
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP
04/18/03 O:\Increment\tracking\ndep_ha_all_baseline_remodelled.apr trucksex so2 24hr 01 update layout ch ep


0.02 µg/m3
85
83
76
Location Map
Legend
-72 - -20 µg/m3
-20 - 0 µg/m3
0 - 10 µg/m3
10 - 15 µg/m3
15 - 20 µg/m3
20 - 22 µg/m3
Populated Place
Facility
Scale
0
2
4 Miles
HA 83 Study
Maximum
Annual SO2 Increments
2001 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-6B
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP
04/17/03 O:/hrcrementtracking/ndep_lts_all_baslns_remodelled.apr truckee so2 an 01 update layout din ep


58.2 µg/m3
85
83
76
Location Map
Legend
-1399 - -500 µg/m3
-500 - 0 µg/m3
0 - 15 µg/m3
15 - 30 µg/m3
30 - 45 µg/m3
45 - 61.4 µg/m3
Populated Place
Facility
Scale
0
2
4 Miles
N
HA 83 Study
High Second High
24-Hour PM10 Increments
2000 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-8A
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP


16.7 µg/m3
85
83
76
Location Map
Legend
-315 - -150 µg/m3
-150 - 0 µg/m3
0 - 9 µg/m3
9 - 17 µg/m3
17 - 23.9 µg/m3
Populated Place
Facility
Scale
0
2
4 Miles
N
HA 83
Maximum
Annual PM10 Increments
2000 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-10A
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP


85
83
76
Location Map
Legend
-9 - 0 µg/m3
0 - 7 µg/m3
7 - 14 µg/m3
14 - 25 µg/m3
25 - 34.1 µg/m3
Populated Place
Facility
34.1 µg/m3
Scale
0
2
4 Miles
N
HA 83 Study
Maximum
Annual NO2 Increments
2000 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-7A
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP

Summary of Results HA 76 & 85

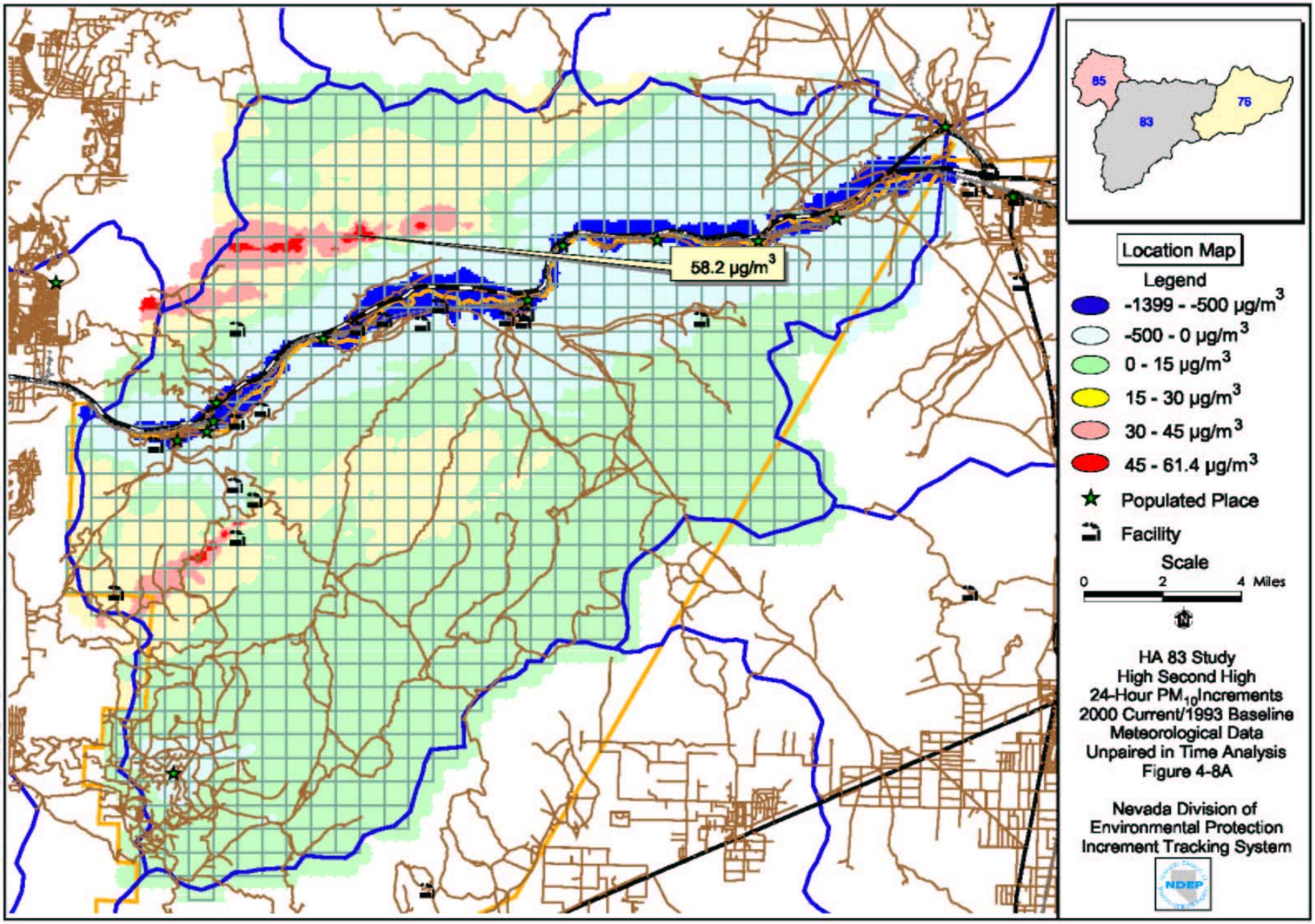
- HA 76 & 85 - Modeled values are less than allowable increments.

Summary of Results HA 83

- HA 83 - Modeled values of SO_2 less than allowable increment.
- Modeled values of PM_{10}, annual – near allowable increment.
- Modeled values indicate increment to be exceeded in select regions for:
  - PM_{10}, 24-hr
  - NO_2, Annual

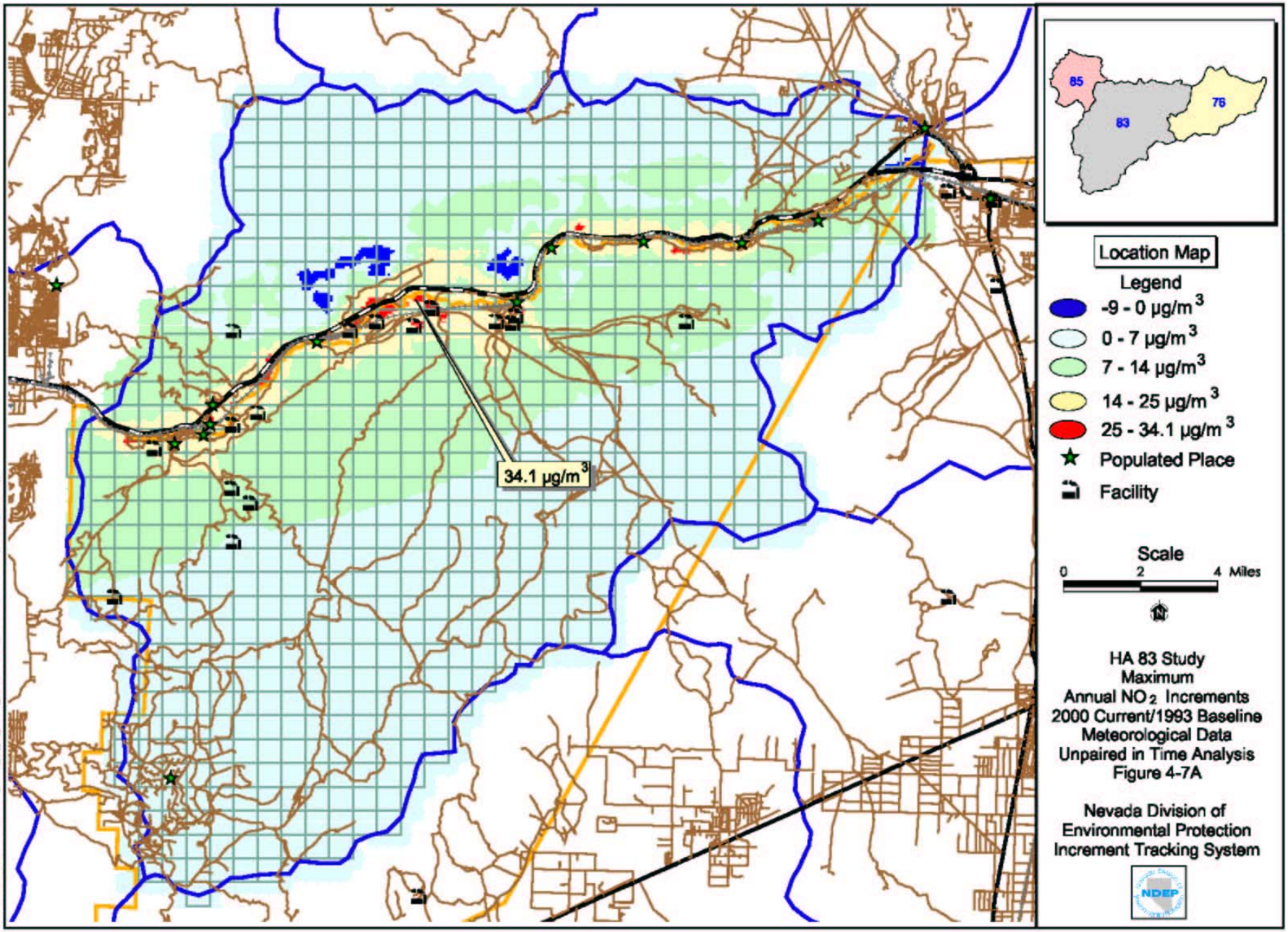
HA 83
PM_{10}, 24-hr Increment Consumption

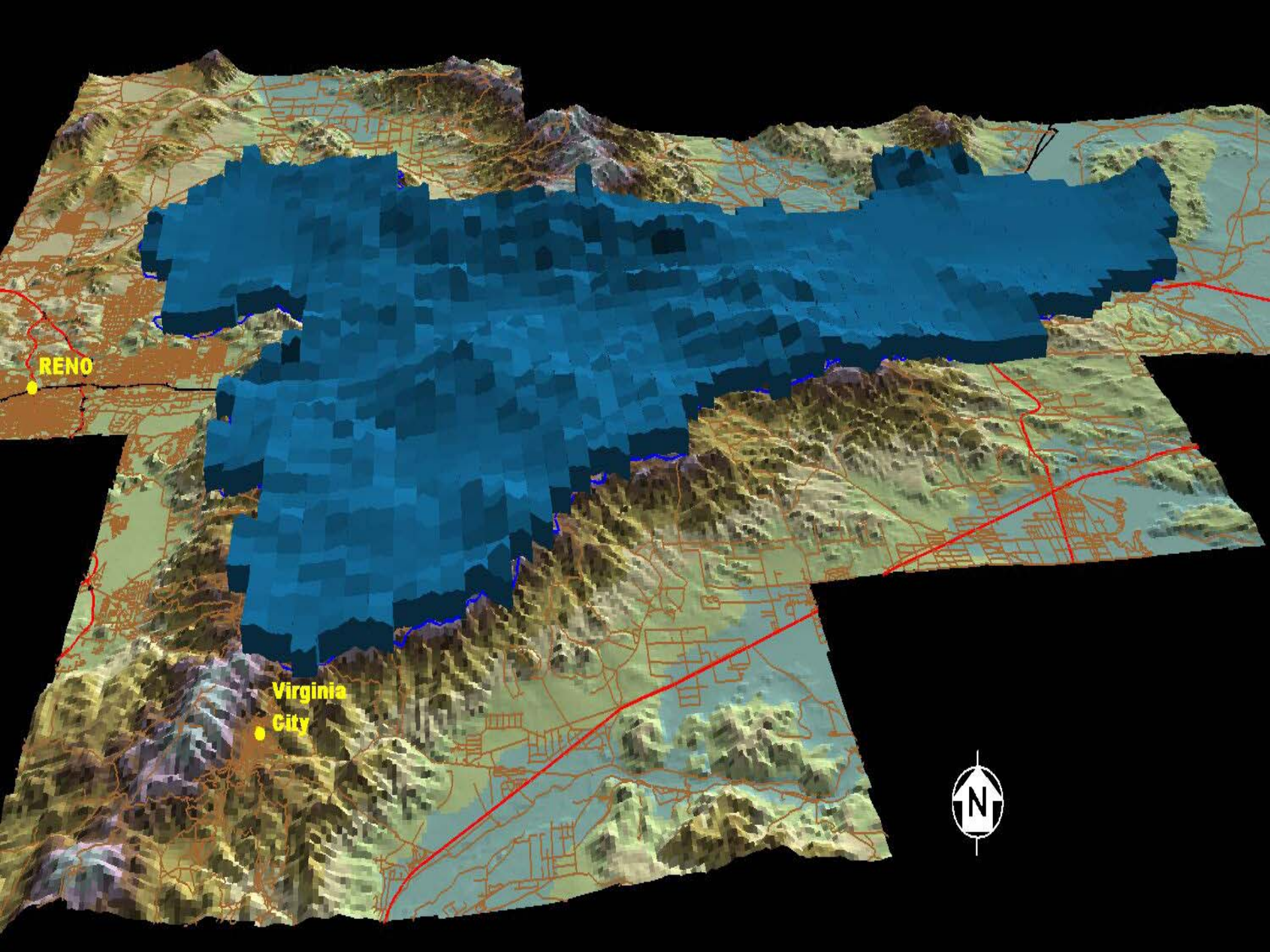
- Point source emissions
  - Single point source
  - Working to make adjustments in emissions profile for the facility.
- Fugitive area source emissions
  - Screening level modeling approach used
  - Needs further refinement
- Difficult to locate PM_{10} source in these regions


58.2 µg/m3
85
83
76
Location Map
Legend
-1399 - -500 µg/m3
-500 - 0 µg/m3
0 - 15 µg/m3
15 - 30 µg/m3
30 - 45 µg/m3
45 - 61.4 µg/m3
Populated Place
Facility
Scale
0
2
4 Miles
N
HA 83 Study
High Second High
24-Hour PM10 Increments
2000 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-8A
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP

HA 83
NOx, Annual Increment Consumption

- Fugitive area source emissions
  - Screening level modeling approach used
  - Needs further refinement
- Difficult to locate NO_x source in these regions


85
83
76
Location Map
Legend
-9 - 0 µg/m3
0 - 7 µg/m3
7 - 14 µg/m3
14 - 25 µg/m3
25 - 34.1 µg/m3
Populated Place
Facility
34.1 µg/m3
Scale
0
2
4 Miles
N
HA 83 Study
Maximum
Annual NO2 Increments
2000 Current/1993 Baseline
Meteorological Data
Unpaired in Time Analysis
Figure 4-7A
Nevada Division of
Environmental Protection
Increment Tracking System
NDEP


RENO
Virginia
City
N

Increment Tracking System (ITS)

- Tool developed for continued tracking of increment
- Aid for planning & development
- Provides a mechanism for modeling smaller subsets of the entire HA

Where to Get More Information

- BAQP Web Site (www.ndep.nv.gov/baqp)
- Nevada Air Regulations
  (http://www.leg.state.nv.us/NAC/NAC-445B.html)
- Title 40 CFR Part 52.21
- PSD Workshop Manual
  (http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf)
- Plain English Guide to the Clean Air Act
  (http://www.epa.gov/oar/oaqps/peg_caa/pegcaain.html)

Important Terms

- "Increment" – The maximum allowable increase in a pollutant's concentration over the baseline concentration (40 CFR Part 52.21(c)).
- "Baseline Concentration" – That ambient concentration level which exists in the baseline area at the time of the applicable minor source baseline date (40 CFR Part 52.21(b)(13)(i)).
- "Baseline Area" – Any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107(d)(1)(D) or (E) of the Act in which a major source establishes the minor source baseline date (40 CFR Part 52.21(b)(15)(i)).
- "Major Source" – Any specified category of stationary source which emits or has the potential to emit 100 ST/yr of any single pollutant; OR any other stationary source not specified which emits or has the potential to emit 250 ST/yr of any single pollutant. (40 CFR Part 52.21(b)(1)(i)).
- "Minor Source Baseline Date" – The date on which a major stationary source or major modification subject to the PSD permitting requirements submits a complete application.

Questions?