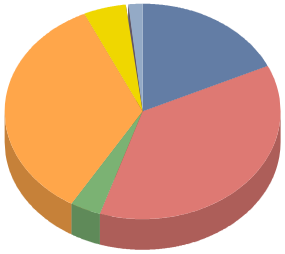
Analysis Report

for

Reno



Land cover in acres and percentages

Arid & Semi-Arid Rangeland: Sagebrush: Ground cover 30% - 70%	9,484.9	18.2%
Impervious Surfaces: Paved: Drain to sewer	19,273.1	36.9%
Impervious Surfaces: Unpaved: Dirt	1,809.2	3.5%
Open Space - Grass/Scattered Trees: Grass cover > 75%	18,055.6	34.6%
Trees: Grass/turf understory: Ground cover > 75%	2,599.9	5.0%
Trees: Impervious understory	56.9	0.1%
Water Area	932.9	1.8%
Total:	52,212.5	100.0%

Tree Canopy: 2,656.8 acres (5.1%)

Air Pollution Removal

By absorbing and filtering out nitrogen dioxide (NO2), sulfur dioxide (SO2), ozone (O3), carbon monoxide (CO), and particulate matter less than 10 microns (PM10), trees perform a vital air cleaning service that directly affects the well-being of urban dwellers. CITYgreen estimates the annual air pollution removal rate of trees within a defined study area for these five pollutants based on research conducted by David Nowak, PhD, of the U.S. Forest Service. Economists use “externality” costs, or indirect costs borne by society such as rising health care expenditures and reduced tourism revenue to determine the dollar value of air pollutant removal. The externality costs used in CITYgreen are set by each state’s Public Services Commission.

Nearest Air Quality Reference City: ***Salt Lake City***

	Lbs. Removed/yr	Dollar Value/yr
Carbon Monoxide:	7,105	3,487
Ozone:	71,049	$251,021
Nitrogen Dioxide:	37,893	$133,878
Particulate Matter:	123,152	$290,497
Sulfur Dioxide:	11,842	$10,220
Totals:	**251,041**	**689,103**

Dollar values are based on 2009 dollars

Carbon Storage and Sequestration

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Tons Stored **(Total)**:	**114,327**
Tons Sequestered **(Annually)**:	**890**

Analysis Report

for

Reno

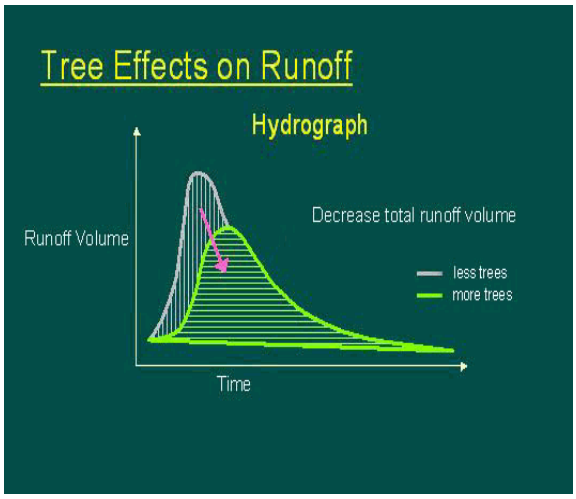
Stormwater Management

Water Quantity (Runoff Volume)

Trees decrease total runoff volume, helping cities to decrease their stormwater management costs. CITYgreen calculates the volume of runoff in a 2-year 24-hour storm event that would need to be contained if all trees were removed. To do this, CITYgreen uses a model developed by the Natural Resources Conservation Service (NRCS) called TR-55, based on a system of curve numbers. Curve numbers are an index of potential runoff within a specified drainage area. Curve numbers range from 30 to 100, with a higher number indicating greater runoff potential.

CITYgreen calculates two curve numbers for the stormwater analysis: one reflecting existing land cover conditions and the other reflecting the replacement of tree canopy in the study area by a user-defined replacement land cover (specified in the CITYgreen Preferences.) The difference in curve numbers and local rainfall determine the change in storage volume between the two different land cover scenarios (with and without trees). To determine the dollar amount of stormwater-related savings resulting from tree canopy, this calculated volume is then multiplied by the user-specified local construction cost.

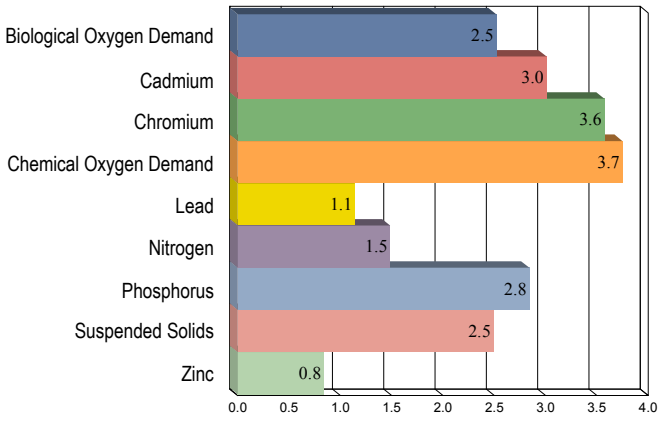
2-yr, 24-hr Rainfall in inches:	2.50
Curve Number reflecting existing conditions:	82
Curve Number of replacement land cover:	82
Dominant soil type: **C**	
Replacement land cover type: (existing condition)	
Urban: Western Desert: Natural Landscaping	
Additional cu. ft. storage needed:	**6,878,922**
Construction cost per cu. ft.:	$3.00
Total Stormwater Value:	**$20,636,766**
Annual Stormwater Value: (based on 20-year financing at 6% interest)	**$1,799,207**



Water Quality (Contaminant Loading)

Trees filter surface water and prevent erosion, both of which maintain or improve water quality. American Forests developed the CITYgreen water quality model using data from the US Environmental Protection Agency (EPA) and Purdue University's L-Thia spreadsheet water quality model. The water quality model estimates the change in the concentration of pollutants in runoff during a typical storm event, by replacing the tree canopy in a specified study area with the user-defined replacement land cover (specified in the CITYgreen Preferences) and comparing the results. The model estimates the event mean concentrations of nitrogen, phosphorus, suspended solids, zinc, lead, cadmium, chromium, chemical oxygen demand (COD), and biological oxygen demand (BOD).

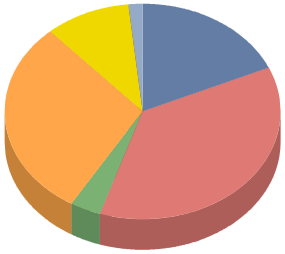
Percent change in contaminant loadings



Analysis Report

for

Reno: Increase to 10% Canopy



Land cover in acres and percentages

Arid & Semi-Arid Rangeland: Sagebrush: Ground cover 30% - 70%	9,502.7	18.2%
Impervious Surfaces: Paved: Drain to sewer	19,266.4	36.9%
Impervious Surfaces: Unpaved: Dirt	1,827.4	3.5%
Open Space - Grass/Scattered Trees: Grass cover > 75%	15,507.1	29.7%
Trees: Grass/turf understory: Ground cover > 75%	5,169.0	9.9%
Trees: Impervious understory	52.2	0.1%
Water Area	887.6	1.7%
Total:	52,212.5	100.0%

Tree Canopy: 5,221.3 acres (10.0%)

Air Pollution Removal

By absorbing and filtering out nitrogen dioxide (NO2), sulfur dioxide (SO2), ozone (O3), carbon monoxide (CO), and particulate matter less than 10 microns (PM10), trees perform a vital air cleaning service that directly affects the well-being of urban dwellers. CITYgreen estimates the annual air pollution removal rate of trees within a defined study area for these five pollutants based on research conducted by David Nowak, PhD, of the U.S. Forest Service. Economists use “externality” costs, or indirect costs borne by society such as rising health care expenditures and reduced tourism revenue to determine the dollar value of air pollutant removal. The externality costs used in CITYgreen are set by each state’s Public Services Commission.

Nearest Air Quality Reference City: ***Salt Lake City***

	Lbs. Removed/yr	Dollar Value/yr
Carbon Monoxide:	13,963	6,853
Ozone:	139,628	$493,313
Nitrogen Dioxide:	74,468	$263,101
Particulate Matter:	242,022	$570,894
Sulfur Dioxide:	23,271	$20,084
Totals:	**493,353**	**1,354,244**

Dollar values are based on 2009 dollars

Carbon Storage and Sequestration

Trees remove carbon dioxide from the air through their leaves and store carbon in their biomass. Approximately half of a tree’s dry weight is carbon. For this reason, large-scale tree planting projects are recognized as a legitimate tool in many national carbon-reduction programs. CITYgreen estimates the carbon storage capacity and sequestration rates of trees within a defined study area. The carbon storage and sequestration model was developed using research conducted by David Nowak, E. Gregory McPherson, and Rowan Rowntree of the U.S. Forest Service.

Tons Stored **(Total)**:	**224,678**
Tons Sequestered **(Annually)**:	**1,749**

Analysis Report

for

Reno: Increase to 10% Canopy

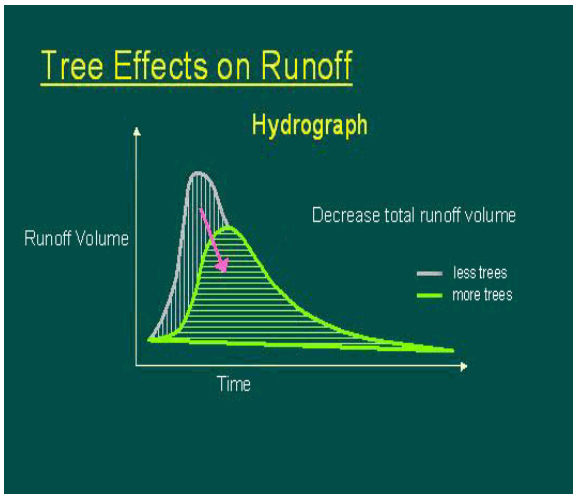
Stormwater Management

Water Quantity (Runoff Volume)

Trees decrease total runoff volume, helping cities to decrease their stormwater management costs. CITYgreen calculates the volume of runoff in a 2-year 24-hour storm event that would need to be contained if all trees were removed. To do this, CITYgreen uses a model developed by the Natural Resources Conservation Service (NRCS) called TR-55, based on a system of curve numbers. Curve numbers are an index of potential runoff within a specified drainage area. Curve numbers range from 30 to 100, with a higher number indicating greater runoff potential.

CITYgreen calculates two curve numbers for the stormwater analysis: one reflecting existing land cover conditions and the other reflecting the replacement of tree canopy in the study area by a user-defined replacement land cover (specified in the CITYgreen Preferences.) The difference in curve numbers and local rainfall determine the change in storage volume between the two different land cover scenarios (with and without trees). To determine the dollar amount of stormwater-related savings resulting from tree canopy, this calculated volume is then multiplied by the user-specified local construction cost.

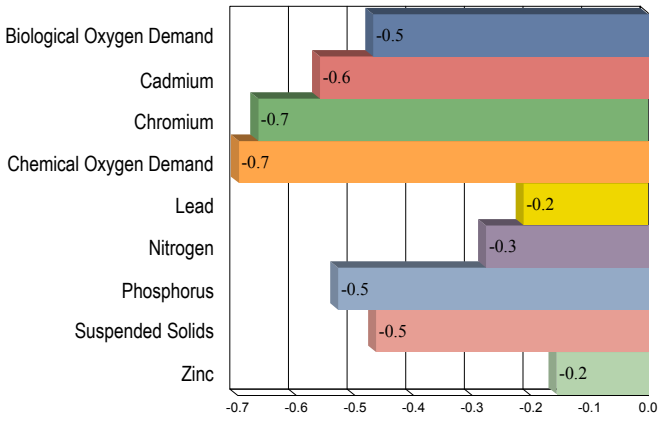
2-yr, 24-hr Rainfall in inches:	2.50
Curve Number reflecting existing conditions:	82
Curve Number of replacement land cover:	82
Dominant soil type:	**C**
Replacement land cover type: (existing condition)	
Urban: Western Desert: Natural Landscaping	
Additional cu. ft. storage needed:	**-1,262,142**
Construction cost per cu. ft.:	$3.00
Total Stormwater Value:	**$-3,786,427**
Annual Stormwater Value: (based on 20-year financing at 6% interest)	**$330,118**



Water Quality (Contaminant Loading)

Trees filter surface water and prevent erosion, both of which maintain or improve water quality. American Forests developed the CITYgreen water quality model using data from the US Environmental Protection Agency (EPA) and Purdue University's L-Thia spreadsheet water quality model. The water quality model estimates the change in the concentration of pollutants in runoff during a typical storm event, by replacing the tree canopy in a specified study area with the user-defined replacement land cover (specified in the CITYgreen Preferences) and comparing the results. The model estimates the event mean concentrations of nitrogen, phosphorus, suspended solids, zinc, lead, cadmium, chromium, chemical oxygen demand (COD), and biological oxygen demand (BOD).

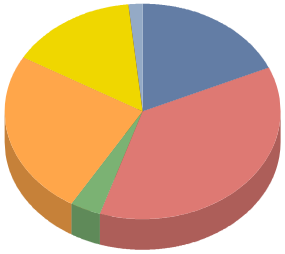
Percent change in contaminant loadings



Analysis Report

for

Reno: Increase to 15% Canopy



Land cover in acres and percentages

Arid & Semi-Arid Rangeland: Sagebrush: Ground cover 30% - 70%	9,502.7	18.2%
Impervious Surfaces: Paved: Drain to sewer	19,266.4	36.9%
Impervious Surfaces: Unpaved: Dirt	1,827.4	3.5%
Open Space - Grass/Scattered Trees: Grass cover > 75%	12,896.5	24.7%
Trees: Grass/turf understory: Ground cover > 75%	7,779.7	14.9%
Trees: Impervious understory	52.2	0.1%
Water Area	887.6	1.7%
Total:	52,212.5	100.0%

Tree Canopy: 7,831.9 acres (15.0%)

Air Pollution Removal

By absorbing and filtering out nitrogen dioxide (NO2), sulfur dioxide (SO2), ozone (O3), carbon monoxide (CO), and particulate matter less than 10 microns (PM10), trees perform a vital air cleaning service that directly affects the well-being of urban dwellers. CITYgreen estimates the annual air pollution removal rate of trees within a defined study area for these five pollutants based on research conducted by David Nowak, PhD, of the U.S. Forest Service. Economists use “externality” costs, or indirect costs borne by society such as rising health care expenditures and reduced tourism revenue to determine the dollar value of air pollutant removal. The externality costs used in CITYgreen are set by each state’s Public Services Commission.

Nearest Air Quality Reference City: ***Salt Lake City***

	Lbs. Removed/yr	Dollar Value/yr
Carbon Monoxide:	20,944	10,279
Ozone:	209,442	$739,970
Nitrogen Dioxide:	111,703	$394,651
Particulate Matter:	363,033	$856,340
Sulfur Dioxide:	34,907	$30,126
Totals:	**740,029**	**2,031,366**

Dollar values are based on 2009 dollars

Carbon Storage and Sequestration

Trees remove carbon dioxide from the air through their leaves and store carbon in their biomass. Approximately half of a tree’s dry weight is carbon. For this reason, large-scale tree planting projects are recognized as a legitimate tool in many national carbon-reduction programs. CITYgreen estimates the carbon storage capacity and sequestration rates of trees within a defined study area. The carbon storage and sequestration model was developed using research conducted by David Nowak, E. Gregory McPherson, and Rowan Rowntree of the U.S. Forest Service.

Tons Stored **(Total)**:	**337,017**
Tons Sequestered **(Annually)**:	**2,624**

Analysis Report

for

Reno: Increase to 15% Canopy

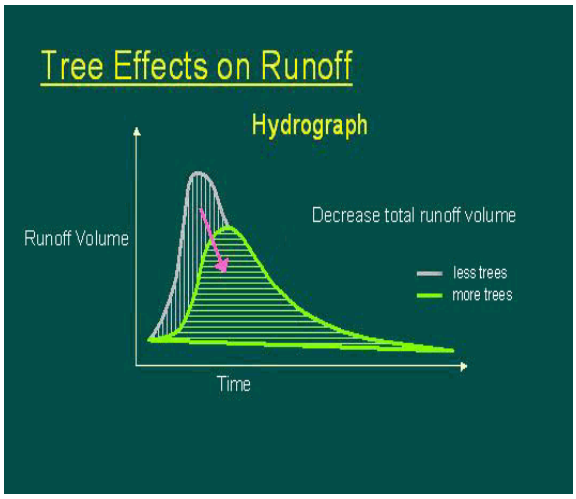
Stormwater Management

Water Quantity (Runoff Volume)

Trees decrease total runoff volume, helping cities to decrease their stormwater management costs. CITYgreen calculates the volume of runoff in a 2-year 24-hour storm event that would need to be contained if all trees were removed. To do this, CITYgreen uses a model developed by the Natural Resources Conservation Service (NRCS) called TR-55, based on a system of curve numbers. Curve numbers are an index of potential runoff within a specified drainage area. Curve numbers range from 30 to 100, with a higher number indicating greater runoff potential.

CITYgreen calculates two curve numbers for the stormwater analysis: one reflecting existing land cover conditions and the other reflecting the replacement of tree canopy in the study area by a user-defined replacement land cover (specified in the CITYgreen Preferences.) The difference in curve numbers and local rainfall determine the change in storage volume between the two different land cover scenarios (with and without trees). To determine the dollar amount of stormwater-related savings resulting from tree canopy, this calculated volume is then multiplied by the user-specified local construction cost.

2-yr, 24-hr Rainfall in inches:	2.50
Curve Number reflecting existing conditions:	82
Curve Number of replacement land cover:	81
Dominant soil type:	**C**
Replacement land cover type: (existing condition)	
Urban: Western Desert: Natural Landscaping	
Additional cu. ft. storage needed:	**-2,317,040**
Construction cost per cu. ft.:	$3.00
Total Stormwater Value:	**$-6,951,119**
Annual Stormwater Value: (based on 20-year financing at 6% interest)	**$606,030**



Water Quality (Contaminant Loading)

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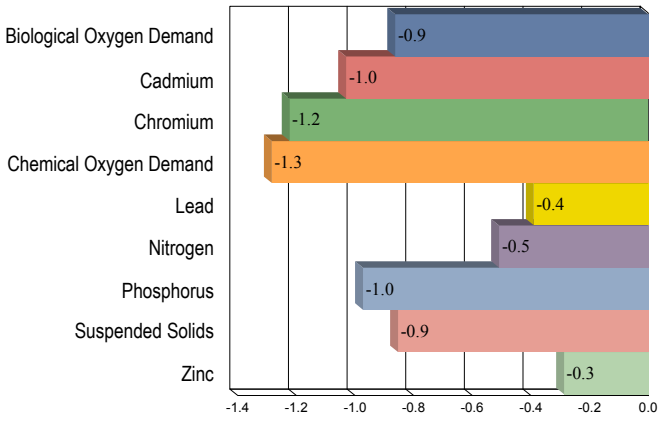
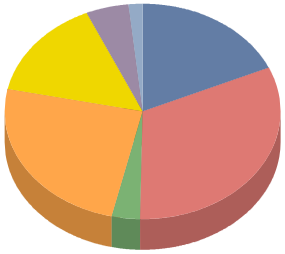
Percent change in contaminant loadings



Analysis Report

for

Reno: Increase to 20% Canopy



Land cover in acres and percentages

Arid & Semi-Arid Rangeland: Sagebrush: Ground cover 30% - 70%	9,502.7	18.2%
Impervious Surfaces: Paved: Drain to sewer	16,708.0	32.0%
Impervious Surfaces: Unpaved: Dirt	1,827.4	3.5%
Open Space - Grass/Scattered Trees: Grass cover > 75%	12,896.5	24.7%
Trees: Grass/turf understory: Ground cover > 75%	7,779.7	14.9%
Trees: Impervious understory	2,662.8	5.1%
Water Area	835.4	1.6%
Total:	52,212.5	100.0%

Tree Canopy: 10,442.5 acres (20.0%)

Air Pollution Removal

By absorbing and filtering out nitrogen dioxide (NO2), sulfur dioxide (SO2), ozone (O3), carbon monoxide (CO), and particulate matter less than 10 microns (PM10), trees perform a vital air cleaning service that directly affects the well-being of urban dwellers. CITYgreen estimates the annual air pollution removal rate of trees within a defined study area for these five pollutants based on research conducted by David Nowak, PhD, of the U.S. Forest Service. Economists use “externality” costs, or indirect costs borne by society such as rising health care expenditures and reduced tourism revenue to determine the dollar value of air pollutant removal. The externality costs used in CITYgreen are set by each state’s Public Services Commission.

Nearest Air Quality Reference City: ***Salt Lake City***

	Lbs. Removed/yr	Dollar Value/yr
Carbon Monoxide:	27,926	13,705
Ozone:	279,256	$986,627
Nitrogen Dioxide:	148,937	$526,201
Particulate Matter:	484,044	$1,141,787
Sulfur Dioxide:	46,543	$40,168
Totals:	**986,706**	**2,708,488**

Dollar values are based on 2009 dollars

Carbon Storage and Sequestration

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Tons Stored **(Total)**:	**449,356**
Tons Sequestered **(Annually)**:	**3,498**

Analysis Report

for

Reno: Increase to 20% Canopy

Stormwater Management

Water Quantity (Runoff Volume)

Trees decrease total runoff volume, helping cities to decrease their stormwater management costs. CITYgreen calculates the volume of runoff in a 2-year 24-hour storm event that would need to be contained if all trees were removed. To do this, CITYgreen uses a model developed by the Natural Resources Conservation Service (NRCS) called TR-55, based on a system of curve numbers. Curve numbers are an index of potential runoff within a specified drainage area. Curve numbers range from 30 to 100, with a higher number indicating greater runoff potential.

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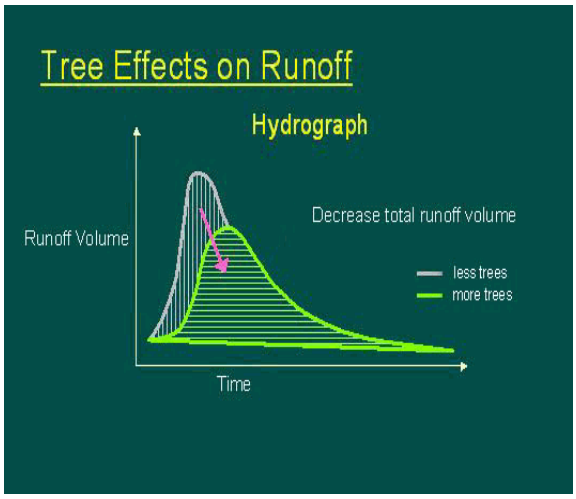
2-yr, 24-hr Rainfall in inches:	2.50
Curve Number reflecting existing conditions:	82
Curve Number of replacement land cover:	81
Dominant soil type:	**C**
Replacement land cover type: (existing condition)	
Urban: Western Desert: Natural Landscaping	
Additional cu. ft. storage needed:	**-5,997,884**
Construction cost per cu. ft.:	$3.00
Total Stormwater Value:	**$-17,993,651**
Annual Stormwater Value: (based on 20-year financing at 6% interest)	**$1,568,769**



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Percent change in contaminant loadings