Wyoming Community Viz™ Partnership Phase I Pilot: Aquifer Protection and Community Viz™ in Albany County, Wyoming

Scott N. Lieske (project manager)

Steve Mullen

Mike Knapp

Jeffrey D. Hamerlinck (principal investigator)

Wyoming Community Viz™ Partnership
Phase I Pilot: Aquifer Protection and Community Viz™ in Albany County, Wyoming

By

Scott N. Lieske (project manager)

Steve Mullen

Mike Knapp

Jeffrey D. Hamerlinck (principal investigator)

Dennis M. Feeney

Alan Frank

Diana G. Hulme (co-principal investigator)

Katy Mays

University of Wyoming
Laramie, WY

June 2003

Suggested reference citation for this publication is:

Wyoming Community Viz™ Partnership Phase I Pilot: Aquifer Protection and Community Viz™ in Albany County, Wyoming.

Disclaimer:

Acknowledgements

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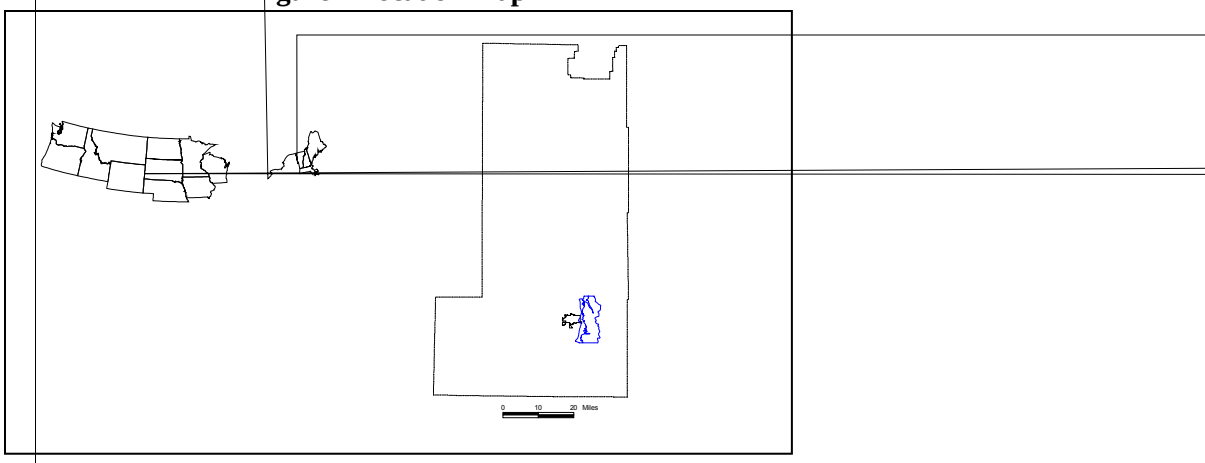

Land Use Impacts on Groundwater Quantity and Quality

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Casper Aquifer Protection Plan

Wyoming Wellhead Protection Guidance Document

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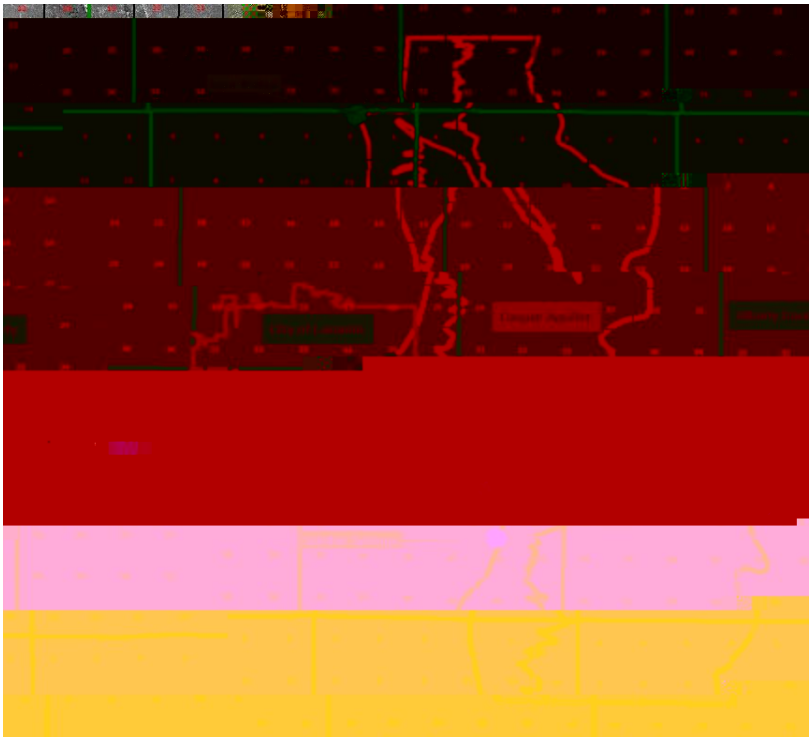

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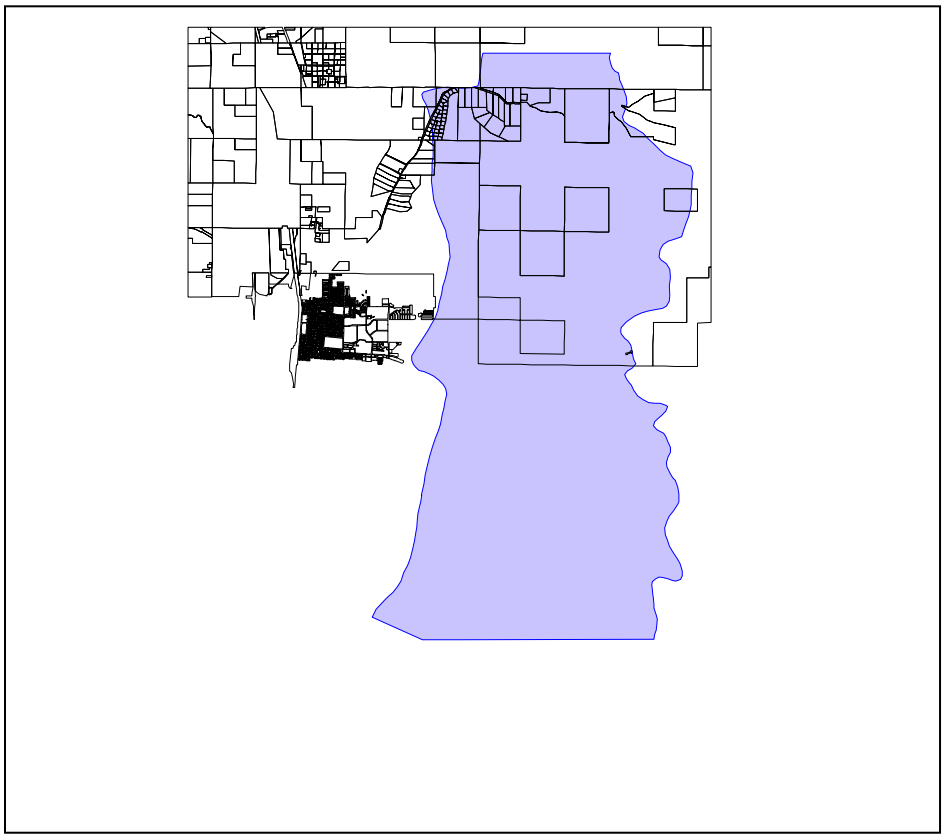

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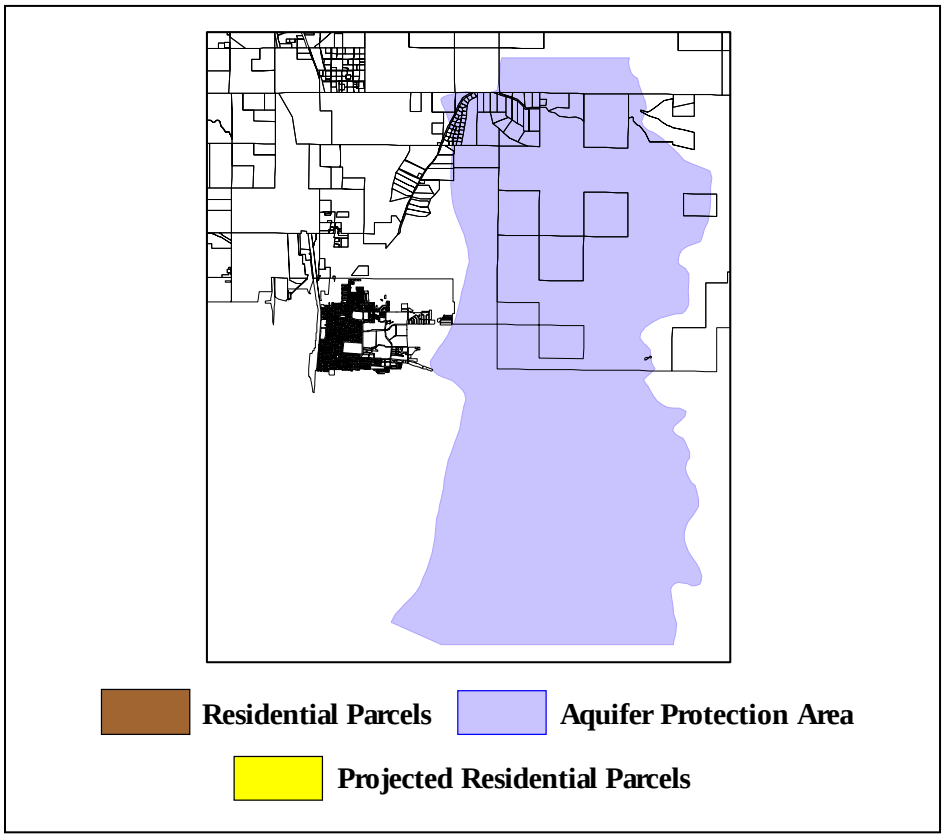

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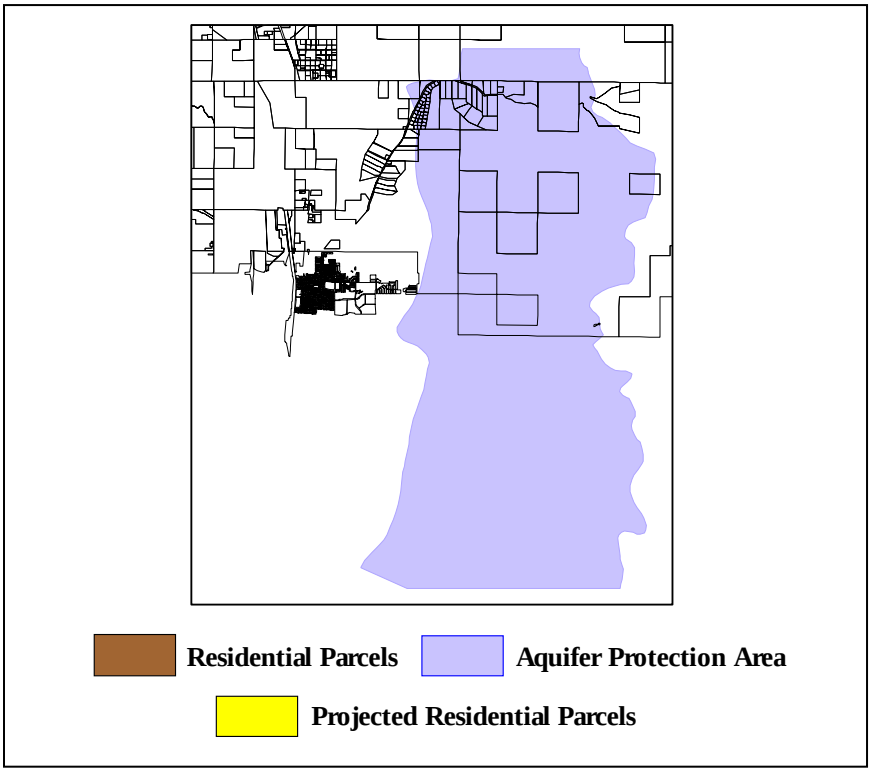

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Scenario Indicators.

- *Quality of Water*
- *Quantity of Water*
- *Local Tax Revenues*
- *Cost of Community Services*
- *Traffic Impacts*
- *Wildlife Habitat*
- *Recreation Access*
- *Visual Impact*
- *Riparian Area*

Quality of water

Quantity of water

Local tax revenues

Cost of community services

Traffic impacts

Wildlife habitat

Recreation access

Visual impact

Riparian area

Results

Quality of Water.

continuation of existing trends

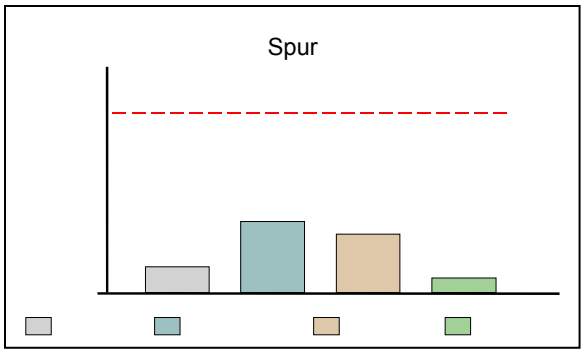
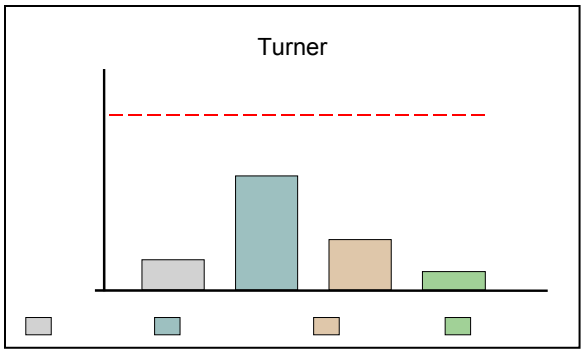


Figure 7a Nitrate Levels at the Spur Wellhead



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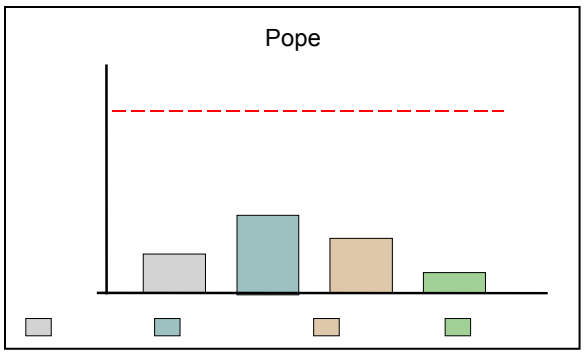

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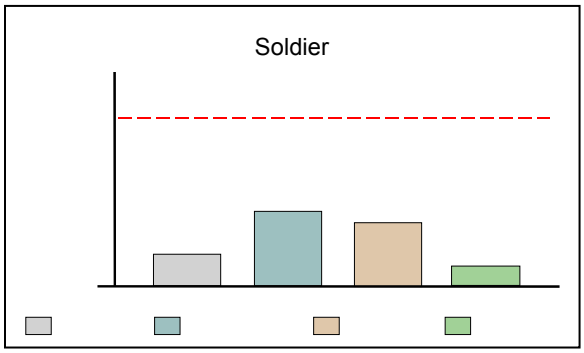

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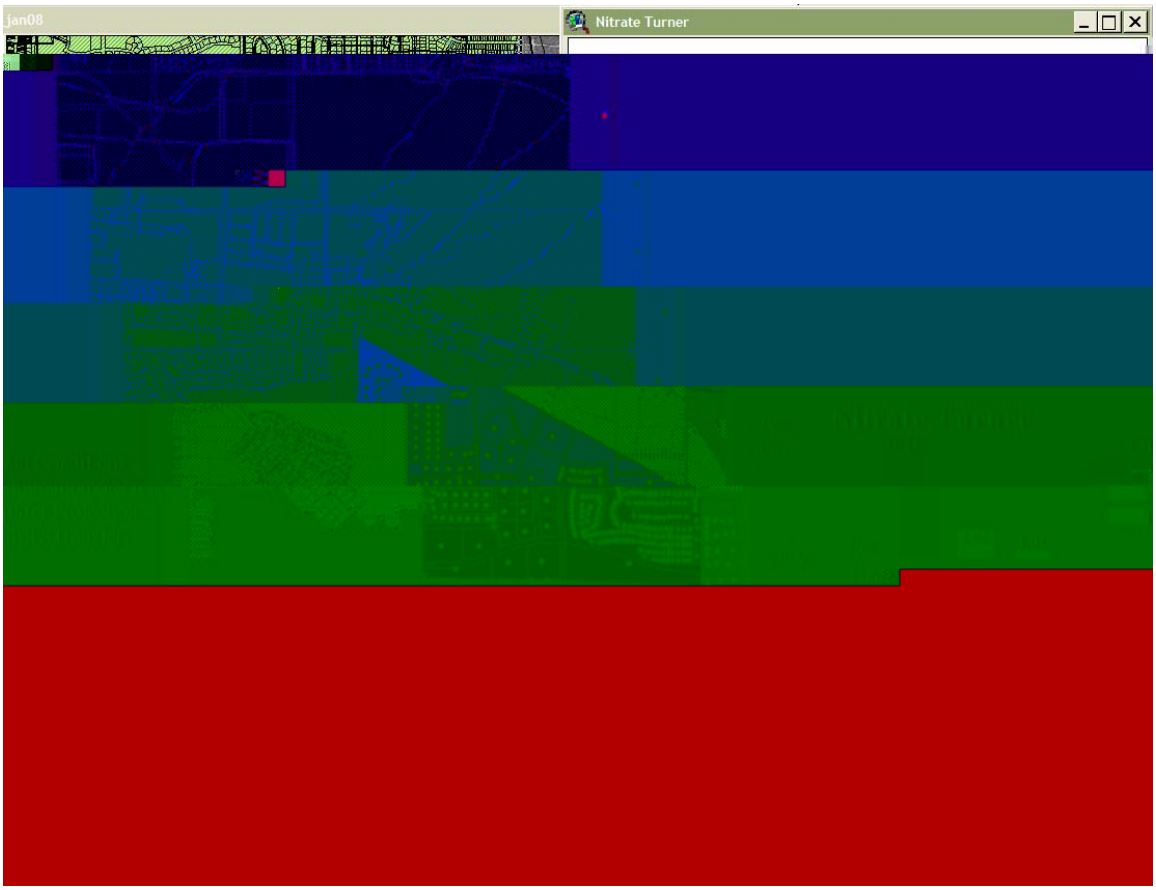
continuation of existing trends

continuation of existing trends

aquifer protection

continuation of existing trends



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Quantity of Water.

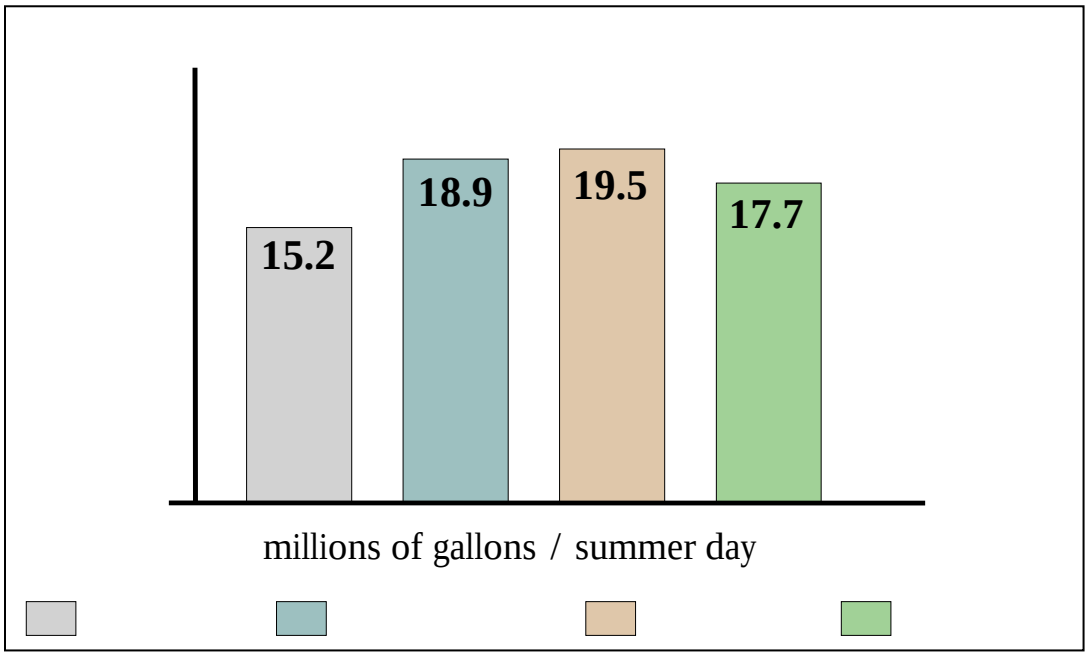

Figure 9 Quantity of Water Consumed

aquifer protection

continuation of existing trends

current conditions *density shift*

Local Tax Revenues.

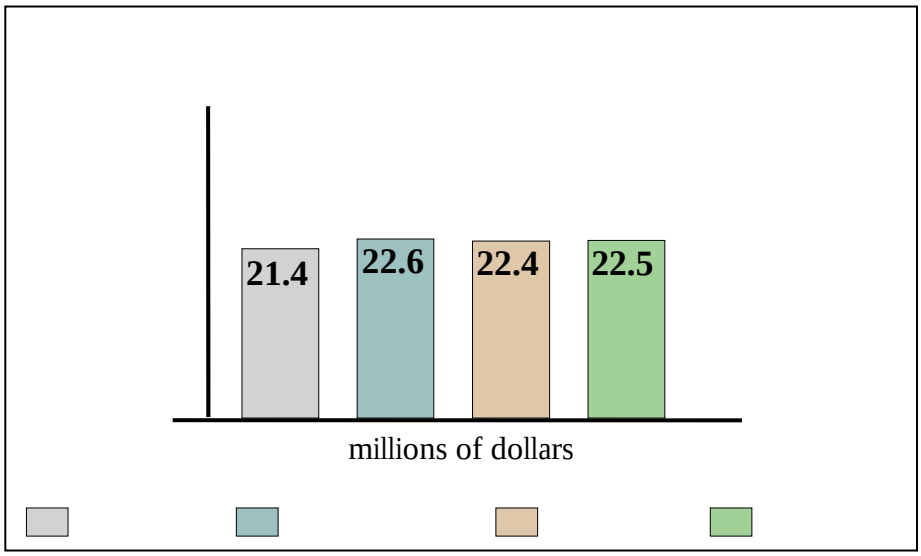

Figure 10 Local Tax Revenues

continuation of existing trends *aquifer protection*

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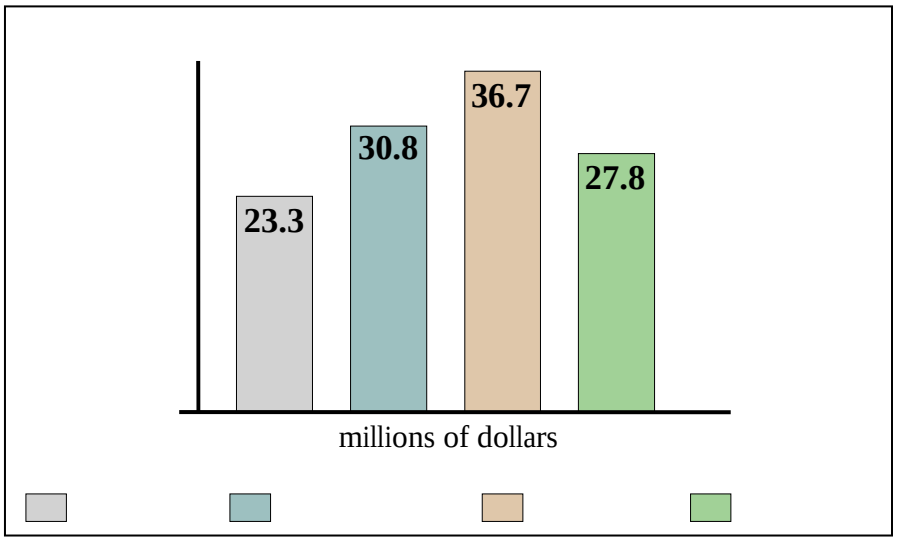


Figure 11 Aggregate Cost of Community Services

density shift

continuation

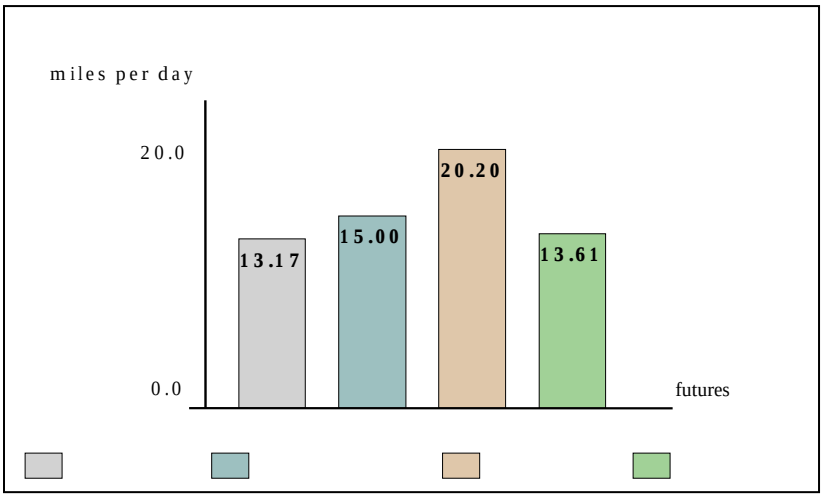
of existing trends *aquifer protection* *density shift*

density shift

continuation of existing trends

current conditions *aquifer protection*

Traffic Impacts



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Wildlife Habitat.

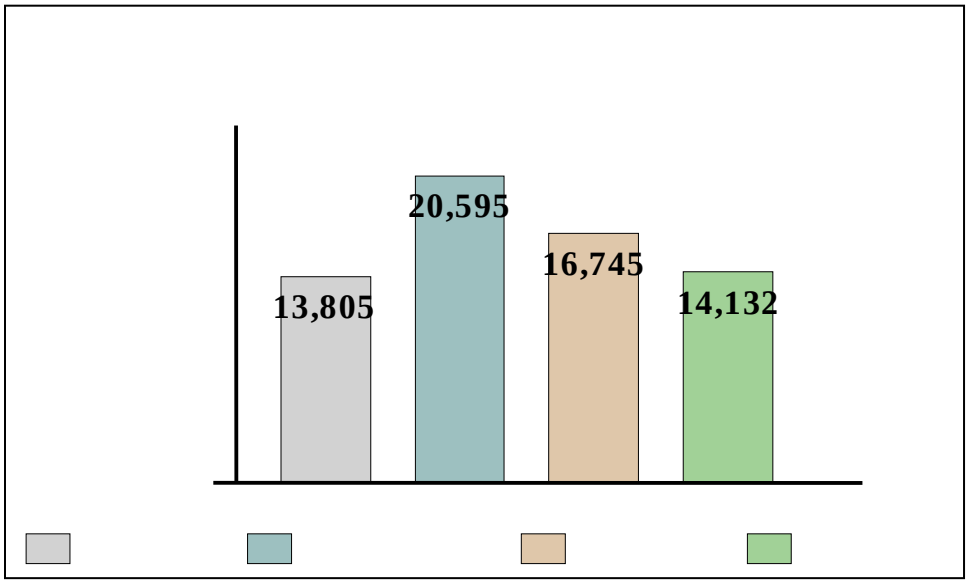

Figure 13 Wildlife Habitat

aquifer protection

aquifer protection

continuation of existing trends

density shift

Recreation Access.

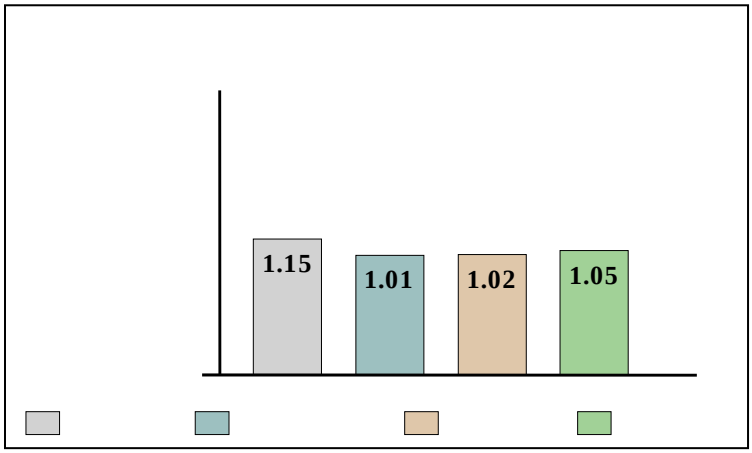

Figure 14 Recreation Access

Visual Impact.

Figure 15 Visual Impact

aquifer protection

protection

continuation of existing trends

continuation of existing trends

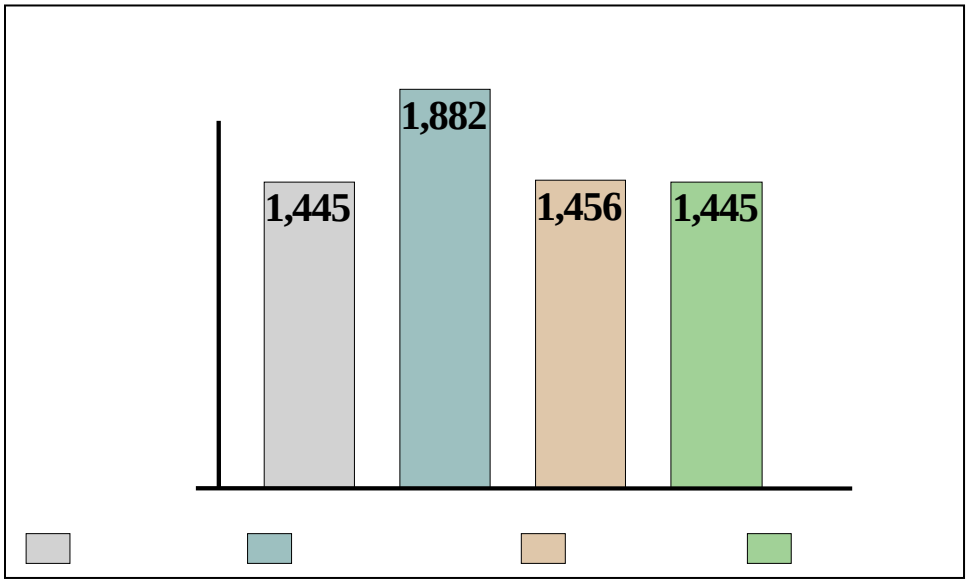

Figure 16 Riparian Area Impacts

Summary.

	Continue Trends	Aquifer Plan	Density Shift
Quantity of Water	Medium	Worst	Best
Quality of Water	Worst	Medium	Best
Local Tax Revenues	Worst	Medium	Best
Municipal Expenditures	Medium	Worst	Best
Traffic Impacts	Worst	Medium	Best
Vertebrate Species Distribution	Worst	Medium	Best
Recreation Access	Best	Medium	Worst
Visual Sensitivity	Medium	Worst	Best
Riparian Coincidence	Worst	Medium	Best

L E G E N D

Worst
Medium
Best

Figure 17 Indicator Summary Matrix

Chapter IV
Conclusions and Recommendations

References

Getting scenario-building right

Planning support systems and the new logic of computation

Planning support systems in practice

Drinking Water Quality Report

The Cost of Community Services for Rural Residential Development in Wyoming

Geographical information systems: principles and applications

Planning support systems in practice

Planning support systems: a new perspective on computer-aided planning

CommunityViz: an integrated planning support system

GIS and multicriteria decision analysis

Using ArcView to Harness Growth and Accomplish the Community

Community Viz™ Scenario Constructor User Manual

Using CommunityViz to model impervious surface impacts to watersheds

Scenarios: The Art of Strategic Conservation

Laramie Regional Drinking Water Protection Program: The Casper Aquifer Protection Plan

Using CommunityViz for Tacoma Dome Area Plan

Appendix A
Contributors

Pilot Project Participants

Partnership Members *(as of July 2002)*

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Appendix B
Procedures & Data

Water Quality.

		Yes/No	*Detected, ppm*	*ppm*	*ppm*	*Contamination*
	Turner	*No*	*1.7*			
Nitrate						
(As Nitrogen)	*Pope-Soldier*	*No*	*1.9*			*Run-off from fertilizer use;*
				10	*10*	*leachate from septic tanks;*
	Spur	*No*	*1.5*			*erosion of natural deposits;*
						Sewage
	Surface Source	*No*	*<1.10*			

Septic2.shp

Septic2.shp

Septic2.shp

Water Quantity.

2001 Drinking Water Quality Report

Parcelscviz2.shp

Parcelscviz2.shp

Water Use, Total

Water Use, Total

Local Tax Revenue.

Tax_Property_Total

Tax_Sales_Total

Revenues Total

Parcelscviz2.shp

Parcelscviz2.shp

Tax_Sales_Total

Tax_Sales_Total.

Cost of Community Services.

City of Laramie, Wyoming Operations Equipment Capital Improvement Plan. Annual Budget, July 1, 2001 – June 30, 2002.

parcelscviz2.shp

LaramieCenter.shp

Expense Administrative
Expense Community Services
Expense Fire Department
Expense General Fund
Expense Police Department
Expense Public Works
Expense Solid Waste
Expense Total
Expense Wastewater
Expense Water Fund

parcelscviz2.shp

Vehicle Miles Traveled. *Vehicle Miles Traveled*

Vehicle Miles Traveled

TripDistEntert
TripDistCivic
TripDistSchool
TripDistShopping
TripDistWork

TripDistWork

Parcelscviz2.shp

destinations2.shp

TripDistEntert

TripDistCivic *TripDistSchool* *TripDistWork*

Wildlife Habitat.

Vertmodel1box.shp

Parcelscviz2.shp

Parcelscviz2.shp

HabImpactRe

Vertmodel1box.shp

Recreation Access.

traillink.shp

traillink.shp

RecAccessTrailDistance

traillink.shp

Visual Impact.

Frequency Scene Index

Riparian Area.

ResRiparianImpact

The Data

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**** ParcelCviz2.shp**
1box.shp

Destinations.shp

Laramie.sid

**** Septic2.shp** **Parcelscviz2.shp**

Buildings.shp

Vertmodel1box.shp
vert_q6.e00

Traillink.shp

Lazoneu.shp

****Citylimits.shp** **Lazoneu.shp**

Subdiv.shp

Wellfields.shp

**** Roadsgood2.shp**

**** Roads2.shp**

Hydrobuff.shp

Public.shp **Parcelcviz2.shp**

Lasewer.shp

Delinesppoly.shp **Delinesp.shp**

Quarry.shp

Ripclean.shp

Laramie center.shp

Laramiekn.shp

New_aerial.tif

Slope

Faults_500Kclip.shp

Vizqualty 100 **quartemile.shp** **visualquality.shp**

1box.shp

current conditions

**** Services.shp**

**** 1subone.shp** **Services.shp**

Parcelcntrs2.shp

**** Blockreal.shp**

**** Pline1.shp** **Blockreal.shp**

**** Mainpt.shp**

**** 3dpnt**

Trees.shp

Railroadclip1.shp

Transit stops.shp

Wells.shp

Nwtin1

continuation of existing

****Citylimits2.shp** **citylimits.shp**

aquifer protection

**** Aquifer Protection Scenario.shp** **Parcelscviz2.shp**

Aquiferparcelcenters.shp, **Aquifer Protection Scenario.shp**

Traillinkclip2.shp **traillink.shp**

Aquifer Protection Scenario Roads.shp

density shift

SBMparcels.shp

Appendix C
Outreach

January 17, 2003

January 30, 2003.

February 11, 2003

April 7, 2003

April 10, 2003

April 10, 2003.

April 14, 2003.

May 8, 2003.