

# Short Course on Floodplain Management

**A Reconnaissance Study on the  
Market Impacts on Elevated Homes in Known Floodplains  
City of Snoqualmie Case Study**

**By Ron Throupe, Bob Freitag, Rhonda Montgomery**

# Market Impacts on Elevated Homes

SUMMARY OF CONCLUSIONS:

BACKGROUND SNOQUALMIE:

DISCUSSION:

The process of retrofitting, Value added, Perception through time

Return on investment.

Policy Implications

METHODOLOGY:

QUESTIONS:

# SUMMARY AND CONCLUSIONS:

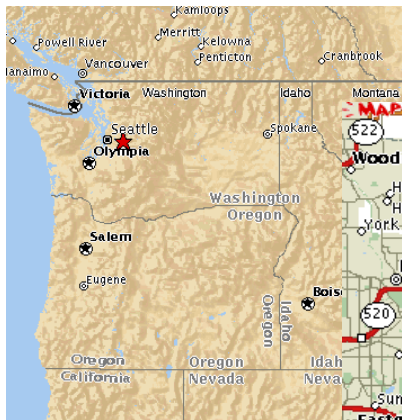
What effect does elevating a home have on the selling price and time on market?

- The market price applied a penalty to non- elevated homes within the floodplain. This was reflected in both times on market and on selling price.
- The market price of elevated homes was higher than non-elevated homes with the difference in price ranging 25% to 75% of the cost of the retrofit.

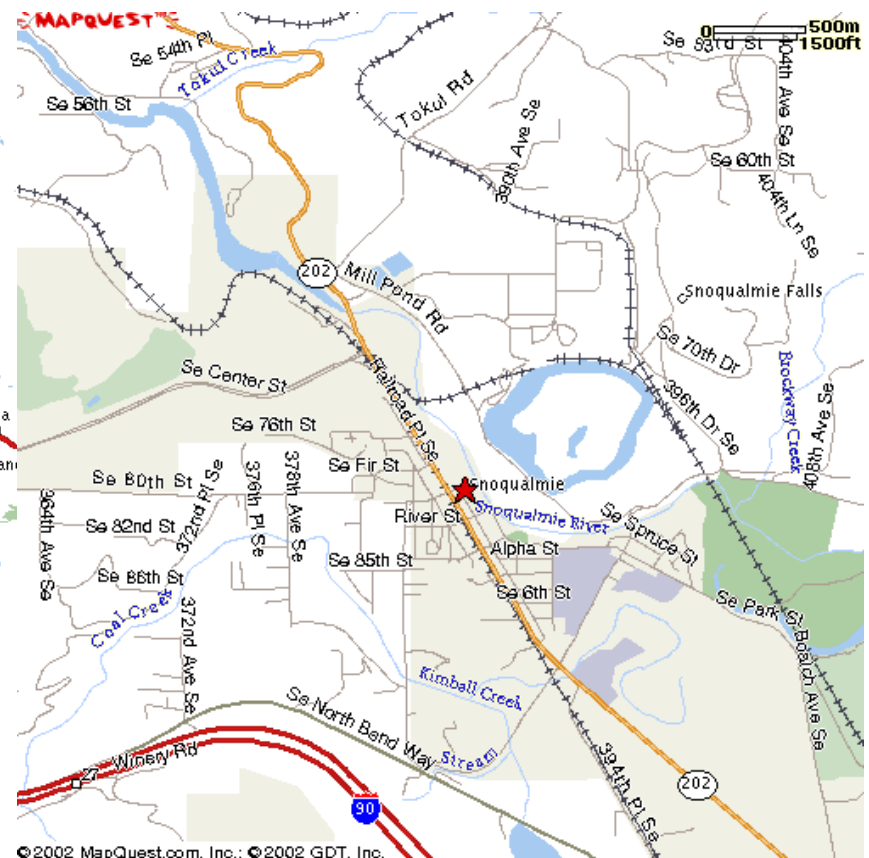
# BACKGROUND: The City of Snoqualmie



# BACKGROUND: The City of Snoqualmie



© 2002 MapQuest.com, Inc.; © 2002 GDT, Inc.

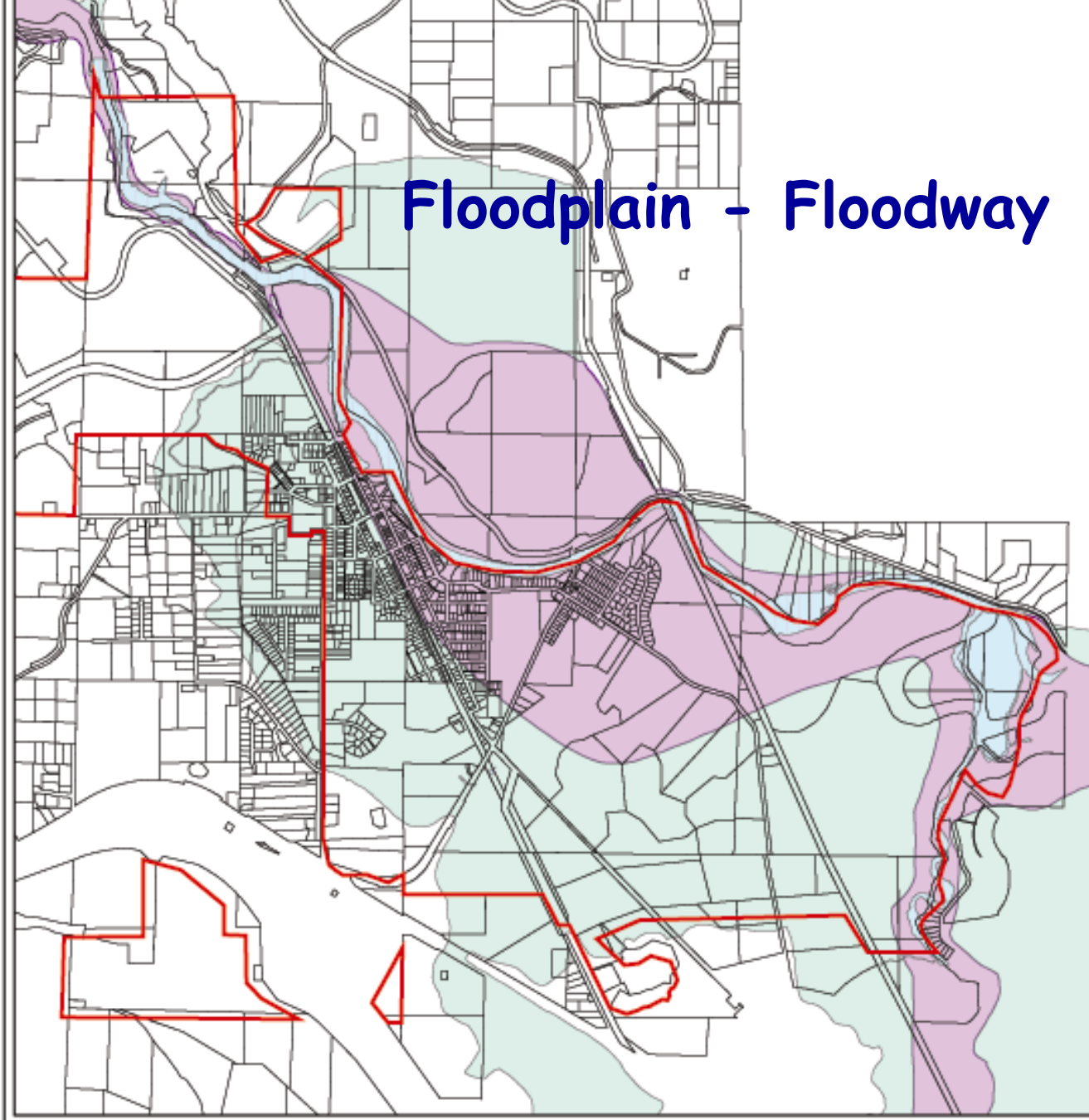


© 2002 MapQuest.com, Inc.; © 2002 GDT, Inc.



Feet  
0 1,000 2,000

# Floodplain - Floodway



## Legend

- Snoqualmie City Limits
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River



## BACKGROUND: The City of Snoqualmie



- Non elevated, elevated and new elevated homes.



# DISCUSSION: The Process of Retrofitting





# DISCUSSION: The Process of Retrofitting



# DISCUSSION: The Process of Retrofitting



- Minimal value added -- no additional floor space.



# DISCUSSION: The Process of Retrofitting

Minimal value added -- no additional floor space





# DISCUSSION: The Process of Retrofitting

- Value added -- Garage



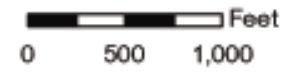
## DISCUSSION: The Process of Retrofitting

- Value added -- Floor space added above garage/car-port.





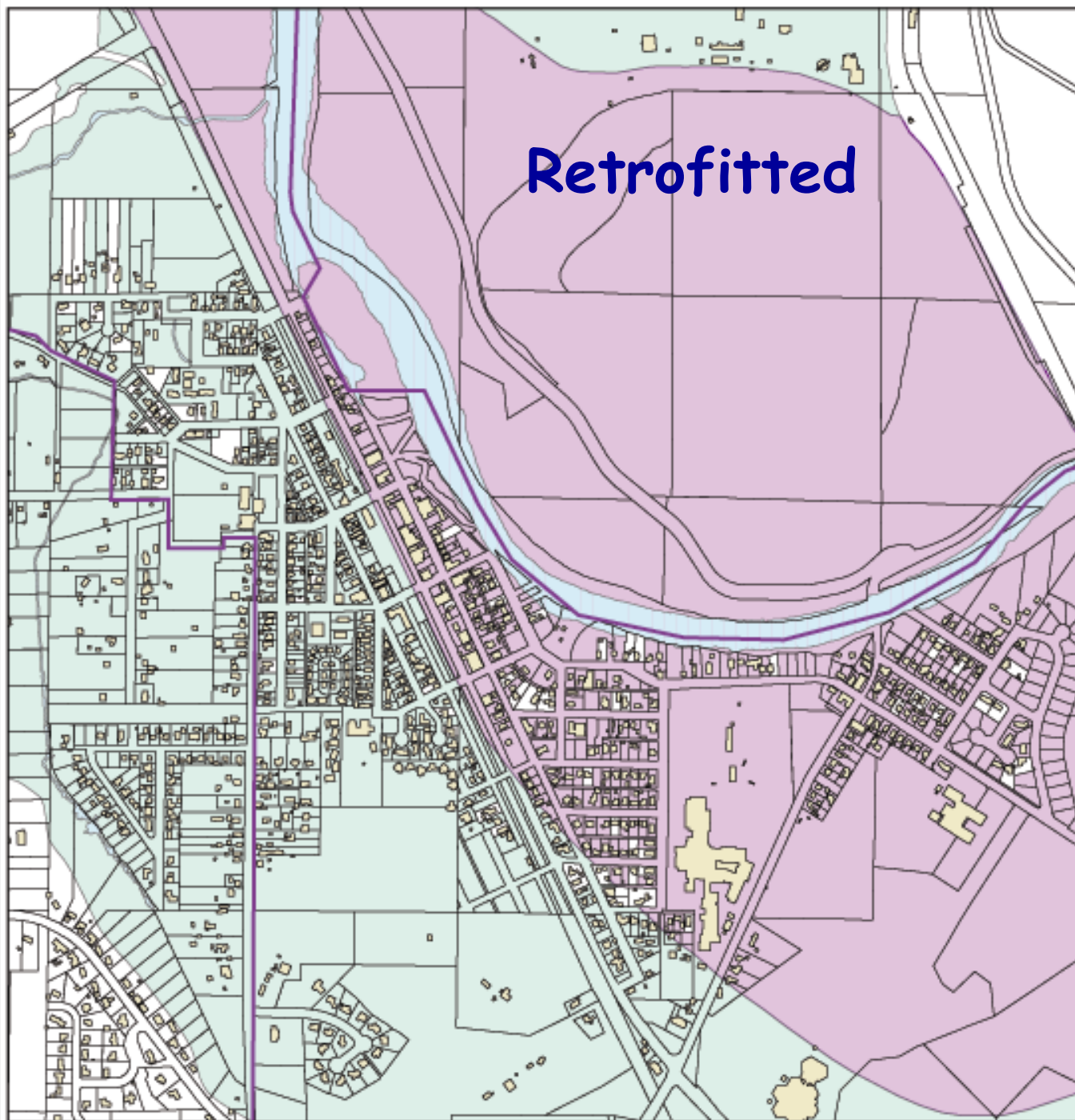
# City of Snoqualmie



Retrofitted

## Legend

- Snoqualmie City Limits
- Building Outlines
- Retrofitted
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River



# DISCUSSION: Elevation at time of construction



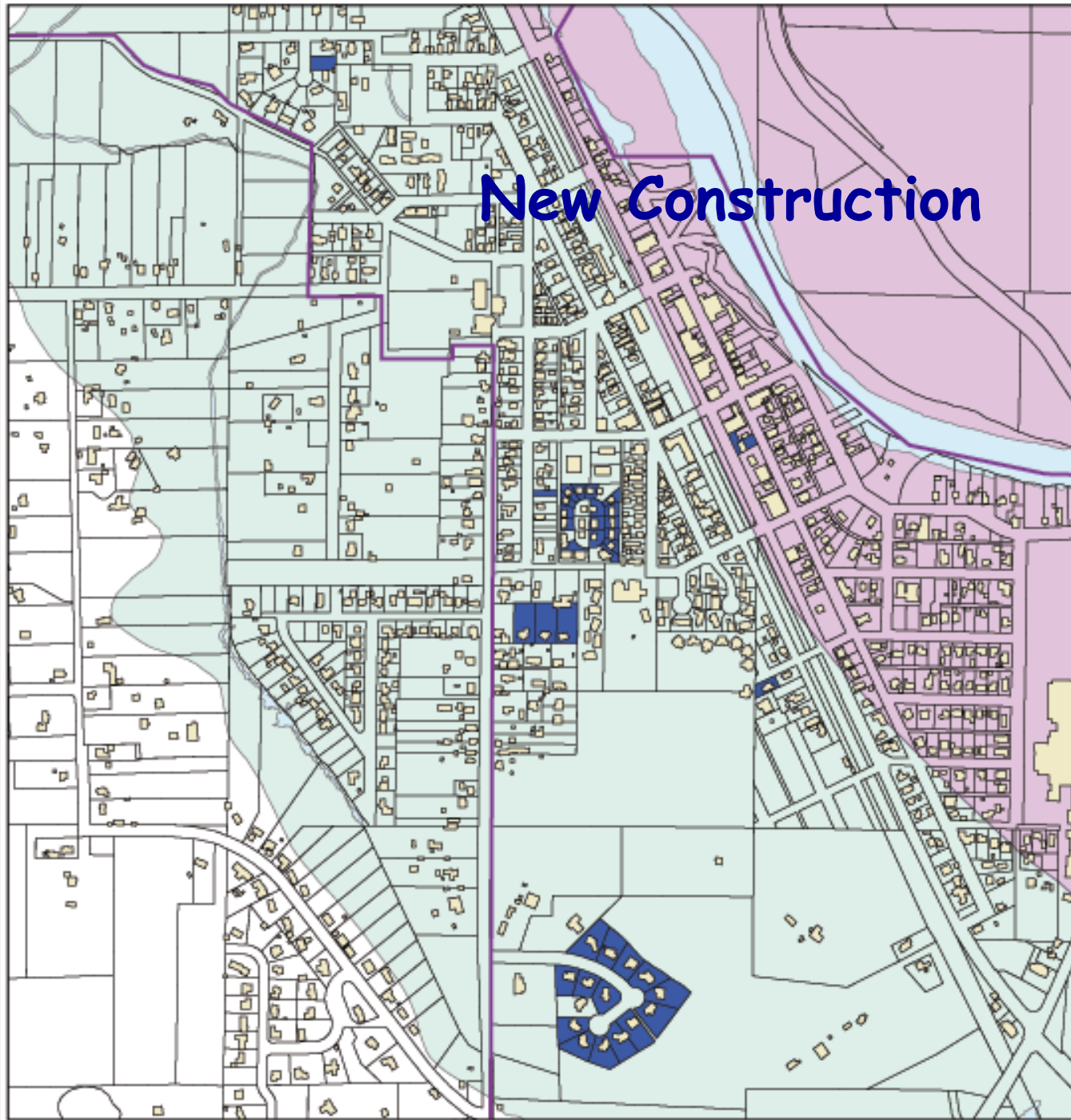


0 500 1,000 Feet

# New Construction

## Legend

- Snoqualmie City Limits
- Building Outlines
- New Construction
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River



# Market Impacts on Elevated Homes

- Methodology



# Homes Elevated and Sold



0 500 1,000 Feet

## Legend

- Snoqualmie City Limits
- Building Outlines
- Elevated & Sold
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River



# City of Snoqualmie



0 500 1,000 Feet

Sold

## Legend

- Snoqualmie City Limits
- Building Outlines
- Sold
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River

# Market Impacts on Elevated Homes

The results suggest that:

- ✓ When elevated homes are not perceived as being out of character with the neighborhood
- ✓ Non-elevated flood prone homes are discounted and
- ✓ The cost of the retrofitting approaches the value of the discount from expected market prices.

# Market Impacts on Elevated Homes

## Questions:

- Is what is experienced in Snoqualmie true for other Riverine floodprone communities - coastal communities?
- When do elevated homes begin to reflect the larger non-floodprone community - are there significant benchmarks, what factors are involved.
- What factors are considered by buyers - sellers?
- What affect do appraisers have?
- What affect do real estate agents have?
- Buyer and seller perceptions?

**A Reconnaissance Study on the  
Market Impacts on Elevated Homes in Known Floodplains  
City of Snoqualmie Case Study**

**By Ron Throupe, Bob Freitag, Rhonda Montgomery**

# The Bottom Line

- The dollar value of home elevation reflected in the market is 50% of the average cost of elevation in today's dollars.
- If a home cost \$35,000 in today's dollars to elevate a home,
- The home would return on average \$17,463 dollars in a market value adjustment.
- Most of the homeowners elevated their homes through HMGP funds and were required to pay between 12.5 and 25 percent of the cost of elevation.
- Conclusion – elevation is a sound investment for the property owner.



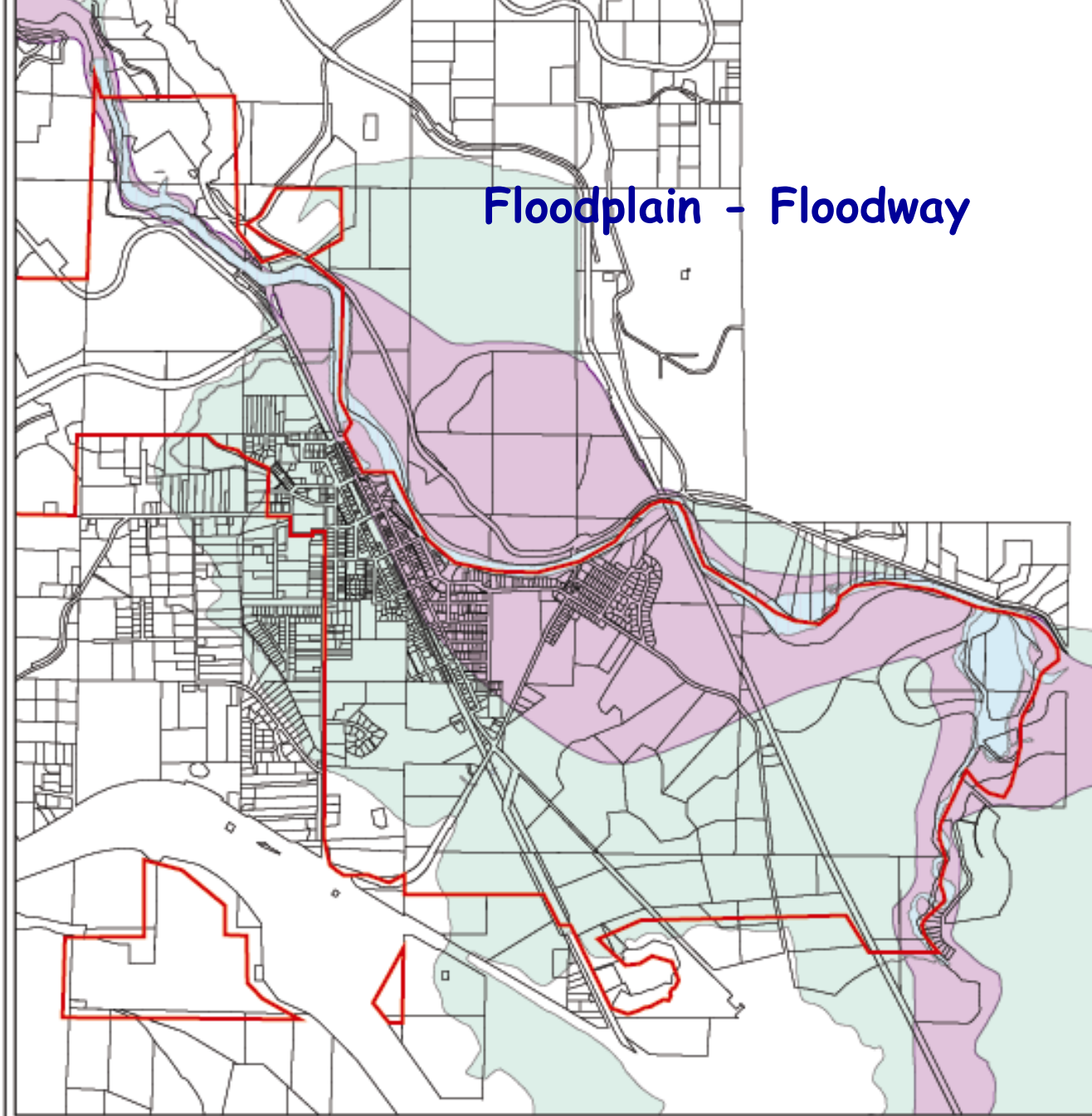
## BACKGROUND: The City of Snoqualmie





Feet  
0 1,000 2,000

## Floodplain - Floodway



### Legend

- Snoqualmie City Limits
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River

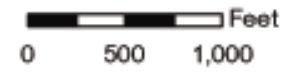
## BACKGROUND: The City of Snoqualmie

- Non elevated, elevated and new elevated homes.

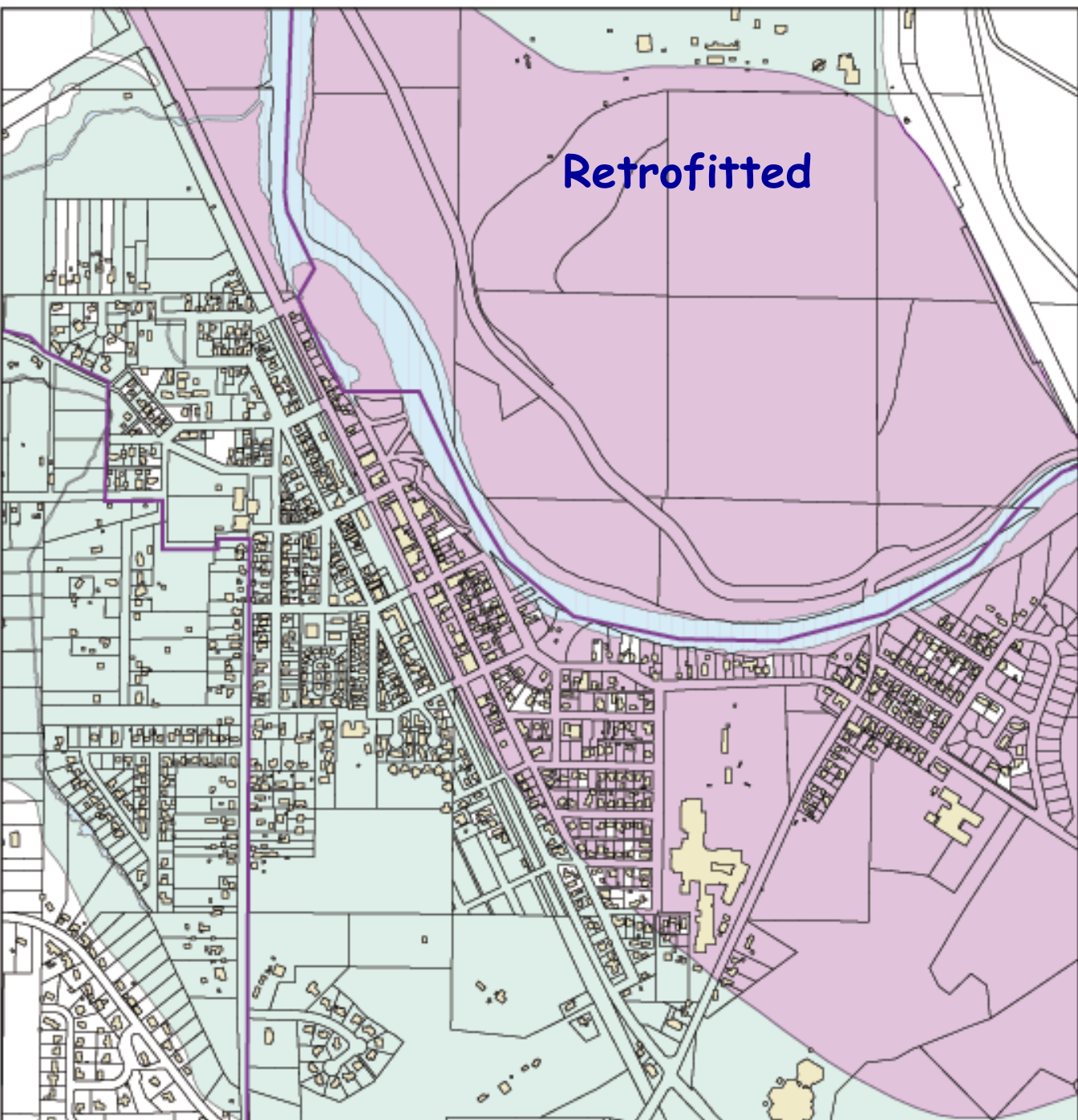
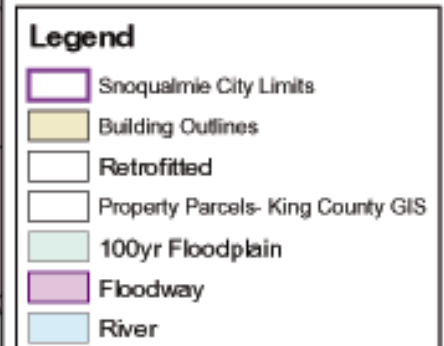




# City of Snoqualmie



Retrofitted



# City of Snoqualmie

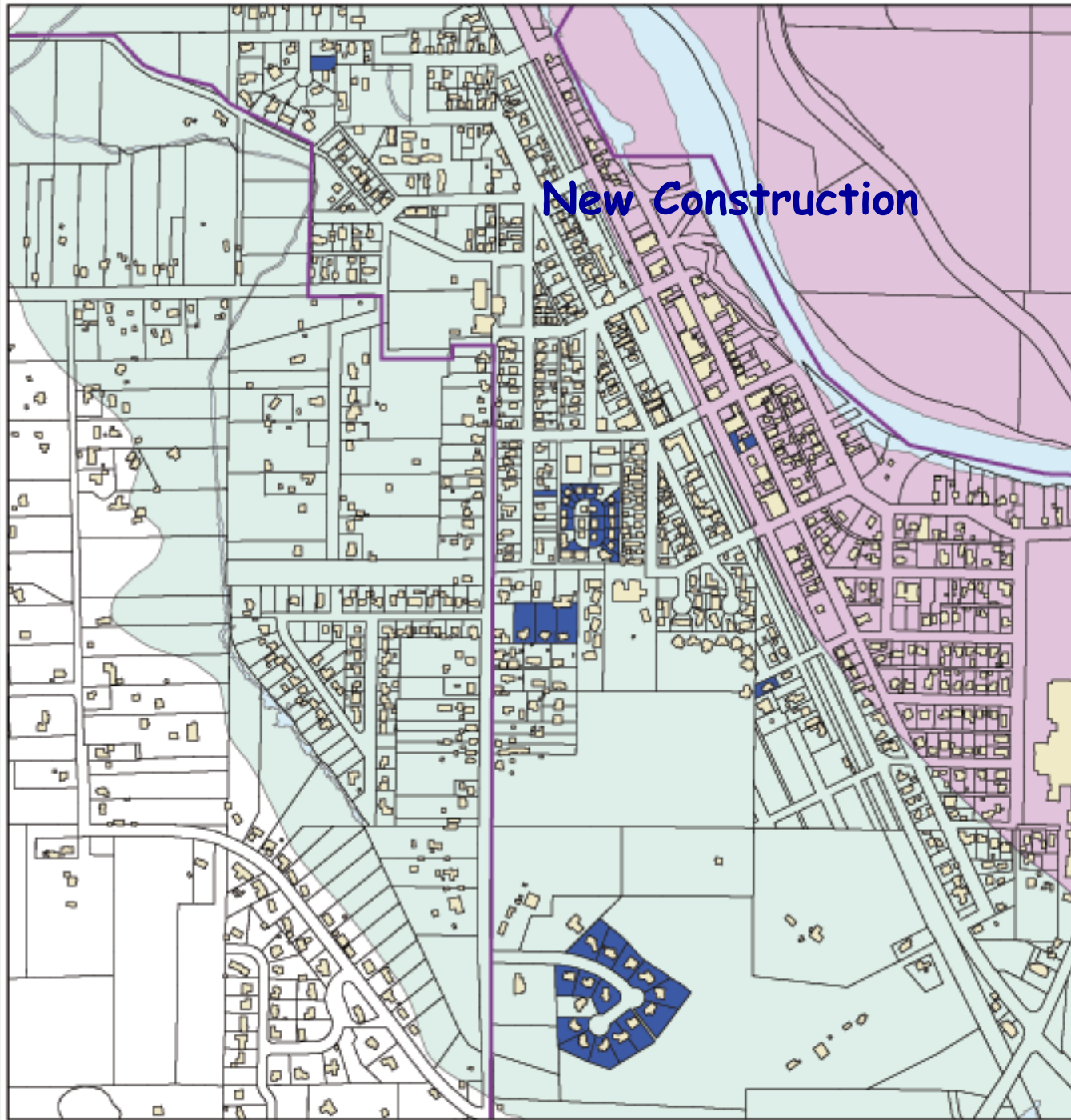


0 500 1,000 Feet

New Construction

## Legend

- Snoqualmie City Limits
- Building Outlines
- New Construction
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River





# City of Snoqualmie



0 500 1,000 Feet

Sold

## Legend

- Snoqualmie City Limits
- Building Outlines
- Sold
- Property Parcels- King County GIS
- 100yr Floodplain
- Floodway
- River

## Snoqualmie, WA

- History of flood events
- Participates in the National Flood Insurance Program, NFIP
- Hazard Mitigation Grant program, HMGP
- Flood Mitigation Assistance Program, FMAP
- State sponsorships

## Literature

- Flood zone discounts
- Knowledge of buyers of the floodplain
- Flood risk vs. actual flooding

## Preliminary Research

- Value added
- Elevations perception
- Market acceptance
- Public Policy implications

## Data

- Sales data from Jan 1998 to June 2002
- 240 sales
- Reduced sample, Ridge Community
- Tom
- Elevation variable

## Rational Market Prices

A	B	C
Non floodplain home	Floodplain home -- Pre FIRM, <u>not</u> <u>elevated</u>	Floodplain home -- Pre FIRM, <u>elevated</u>
Cost bases market price of home = <b>\$195,500</b> (145/sq.ft)	Cost bases market price = <b>\$191,000</b> ("A" - Cost of Flood Insurance or (195,500 - 4,500))	Cost Bases Market Price = <b>194,000</b> ("A" - Cost of Flood Insurance or (195,500 - 1,500))
	(\$360/Yr for 30yrs at 7% = \$4,500)	(\$120/Yr for 30yrs at 7% = \$1,500)



## Market Prices Adjusted by Reconnaissance Study Results.

A	B	C
Non floodplain home	Floodplain home -- Pre FIRM, <u>not</u> <u>elevated</u>	Floodplain home -- Pre FIRM, <u>elevated</u>
Cost bases market price of home = (\$195,500) (C * cost of Flood Insurance)	Cost bases market price of home = \$177,000 ("A" - Cost of Flood Insurance - perception of risk)	Cost bases market price of home = \$194,000 ("A" - Cost of Flood Insurance - perception risk + betterments)
(194,000 + 1.500)	(\$194,000 - \$17,000 = \$177,000)	(\$120/Yr for 30yrs at 7% = \$1, 500)

## Results

- \$17,463 value for elevation
- Represents approx 50% of costs to elevate

# Policy Implications

The state and federal agencies that support floodplain management can learn from this investigation in several ways.

- They can be confident that the moneys spent on elevation created usable dwellings.
- The sales price gain from elevation is within the cost of construction.
- The State of Washington is prevented from providing public investment for private gain. The community at large benefits and it represents a sound investment for the federal government lowering future insurance claims and demands on FEMA personnel.
- Coordination of federal and state programs to expedite elevation may be warranted. Although this has been a successful program in Snoqualmie, less than 15% of the homes affected have been elevated.

## Further Study

- Additional communities
- Buyers depth of knowledge
- investigation of value added