HARDNESS & CAPACITY STUDY SUMMARY PRESENTATION

August 8, 2006

Melissa Moran, PE, BCEE

The City of Valparaiso Strategic Plan

Guaranteeing Clean Water and a Healthy Environment

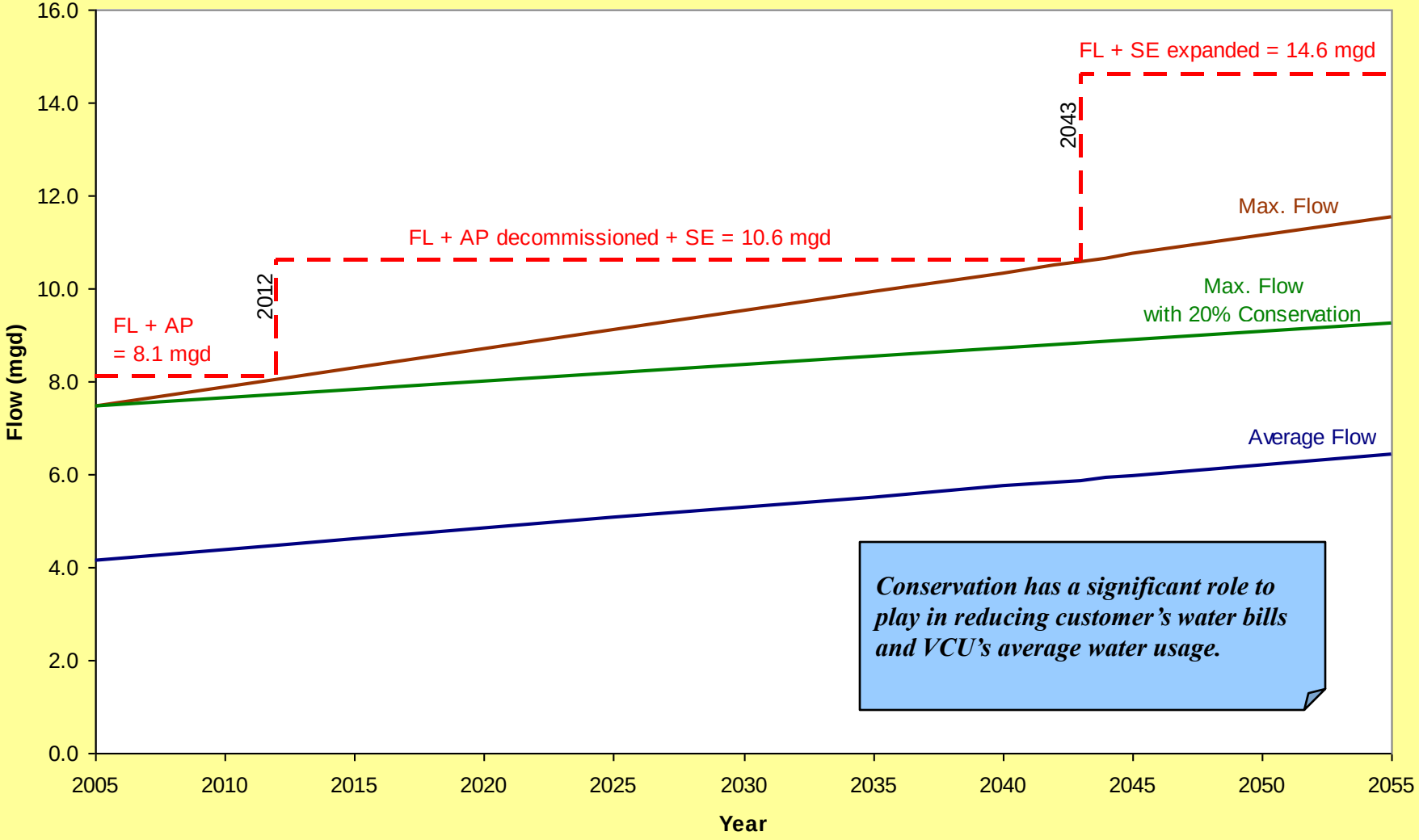
Utility Initiative No. 2: Water Supply and Hardness Analysis

…conduct a comprehensive analysis to explore the issues of long-term supply and hardness of our water supply. The analysis should consider all viable options and alternatives including partnerships with other entities to meet the objectives of the study.

Project Mission Statement

Under the direction of the Utilities Board, an objective study of hardness and capacity of the Valparaiso public water supply will be performed including and representing the views of the community and the Utility staff.

Projected Average Day and Maximum Day Water Demands



Alternatives for Meeting Capacity and Softness Goals

- Groundwater Without Softening
- Groundwater With Softening
- Purchase Michigan City Water Supply
- Blend Groundwater And Surface Water At Existing Water Treatment Plant
- New Lake Michigan Plant
- Collaborate With Other Communities To Buy Northwest Indiana American (create a new water district)

Criteria For Evaluating Alternatives

- Available Quantity For Future
- Sustainability During Drought
- Ability To Protect Public Health
- Ability To Respond To Customer Needs
- Ability To Meet Softened Water Goals
- Political Will
- Acceptability To Customers & Community
- Ability To Control Rates
- Environmental Effects
- Land Availability, Acquisition & Control
- Vulnerability
- Cost

After Evaluation Process, Leading Alternatives:

- Groundwater Supply (with or without softening)
- New Lake Michigan Water Plant (lake water)
- Purchased Water Supply (Lake Water)

Alternative 1:
Groundwater Supply Without Softening

- Develop New Wellfield At Southeast Location
- Transmit New Well Water To Airport Property For Treatment
- Upgrade/Expansion Of Airport WTP
- Timing Will Coincide With Need To Stop Operation Of Wells On Porter County Airport Property

Alternative 2:
Groundwater Supply With Softening

- Develop New Wellfield At Southeast Location
- Transmit New Well Water To Airport Property For Treatment
- Upgrade/Expansion Of Airport WTP
- Timing Will Coincide With Need To Stop Operation Of Wells On Porter County Airport Property
- Treatment For Softening At Airport
- Treatment For Softening At Flint Lake

Alternative 3: Sale-For-Resale Customer Purchasing Lake Michigan (Softer) Water

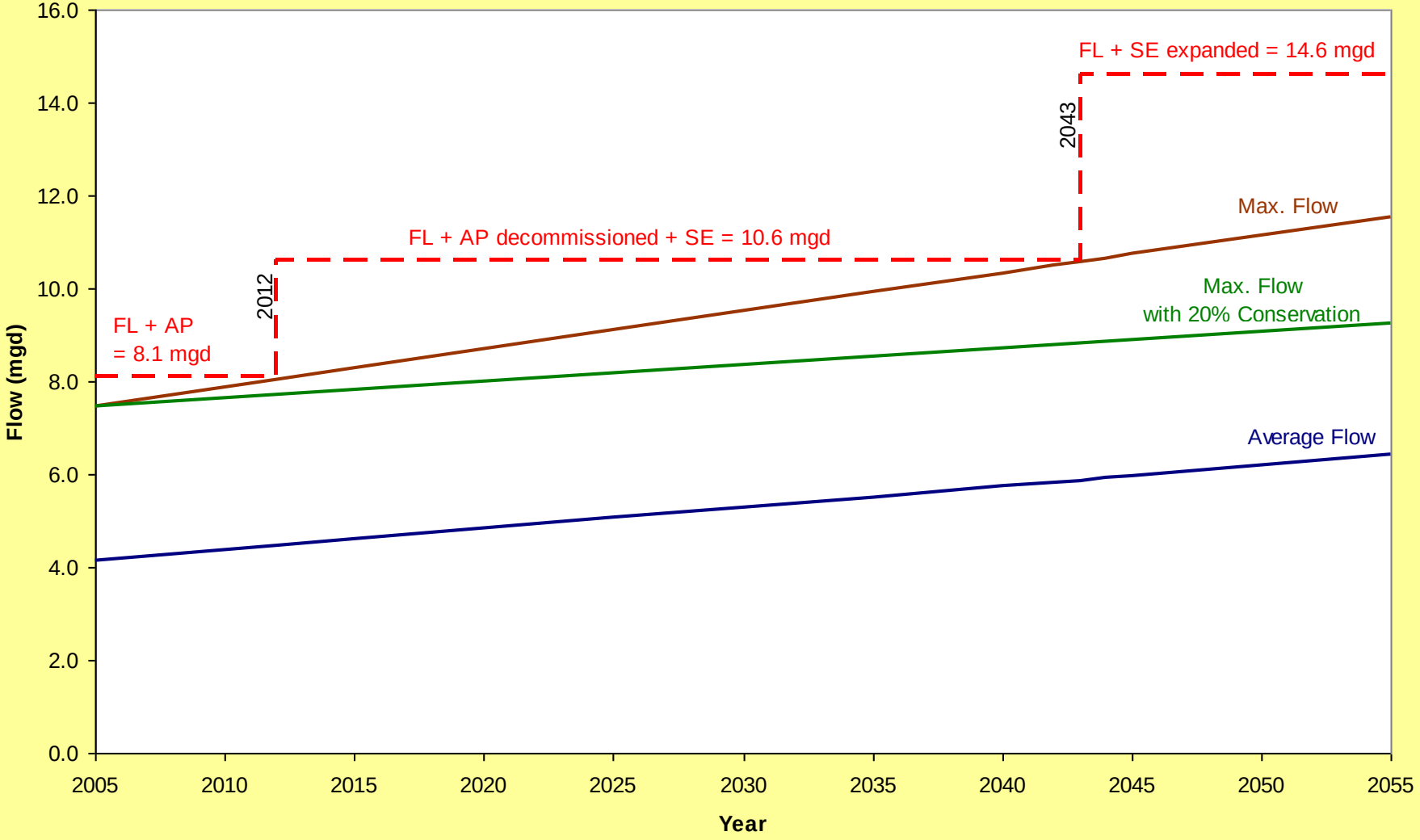
At Two Locations (North and South Pressure Zones):

- New Storage To Provide Average Day
- New Pump Station
- Backup Power Generator
- New Transmission Lines To Connect To Indiana-American

Comparison Of Expenses
2005 Budget & Water Supply Alternatives (2006 $s)

	2005 Budget	Expansion of Groundwater Supply	Soften Expanded Groundwater Supply	Expand & Soften Groundwater Supply	Purchase as Sale-For-Resale Customer
Operating Expenses	$3.2 M	$3.0 M	$3.7 M	$3.7 M	$4.8 M
Capital-Item Expenses	$1.2 M	$2.2 M	$3.3 M	$4.2 M	$3.4 M
Total Expenses	$4.4 M	$5.2 M	$7.0 M	$7.9 M	$8.2 M
Increase Over 2005 Budget	-	16%	57%	77%	85%
Cost of Water Production	$0.029/cf	$0.034/cf	$0.045/cf	$0.051/cf	$0.054/cf
Cost to Average Residence	$18/mo	$21/mo	$29/mo	$33/mo	$34/mo

Projected Average Day and Maximum Day Water Demands



Key Findings of Analysis:

- Projected Growth Steady. Planning To Meet Demands Is Manageable With Periodic Updates To Track Trends
- Groundwater Is Available For Planning Period. Additional Supplies In The Valparaiso Area Can Be Explored
- Several Lake Michigan Water Supply Alternatives Are Available
- Using the Lake Michigan Supply Is Not A Take-It-Or-Leave-It Prospect (Great Lakes Annex)
- Softening Can Be Achieved By Softening Current Groundwater Supply Or Purchasing Lake Michigan Water Supply As A Sale-For-Resale Customer Of Another Utility, *But Not By Blending The Two Sources*

Key Findings of Analysis:

- Some Research Has Attempted To Quantify The Economic Impact Of Hard Water. The Costs of Decreased Appliance Life Have Been Estimated at $2.50 to $4.00 Per Month Per Household.
- Costs For Wear On Clothing, Consumption Of Bottled Water, And Effects On Irrigation And Pool Equipment Were Identified, But Not Quantified In The Literature.
- The 31% of VCU customers who soften their water invest an estimated $20/month in salt and equipment.

Key Findings of Analysis:

- Satisfactory Softness Is Based On A Customer's Perception Of Softness. Customer Sentiment In Favor Of Softening Was 34 to 42% (2001). VCU Would Like To Update This Survey Every 5 Years To Detect Changing Trends To Keep The Board Apprised Of Customer Needs.
- Costs For Alternatives That Achieve Softened Water Are Similar, Whether Softening The Existing Groundwater Supply Or Purchasing Lake Michigan Water From A Neighboring Utility.

Key Findings of Analysis:

- Any Alternative To Achieve Softened Water Would Be Expected To Raise Customer's Monthly Water Bill By An Estimated 55% Over the Cost of Expanding the Supply without Softening. (over 80% of the current costs)
- Purchasing Water From Another Utility Means That VCU Would Give Up Control Of Water Quality And Rate Increases.

The Focus Group

The Focus Group

Community leaders were invited to select representatives for the Focus Group. Representatives from the following organizations participated:

- VCU Board
- Valparaiso Economic Development Commission
- Valparaiso Chamber of Commerce
- Valparaiso Plan Commission
- Porter Hospital
- Valparaiso Community Schools
- Valparaiso University
- LaPorte City Water Department
- Porter County United Way

Feedback from the Focus Group:

- Expressed that planning should consider growth of customer base and not just population. Also, VCU should track residential growth separate from industrial and commercial growth.
- Growth projections should be updated on a regular basis (~every 5 years)
- Understanding that groundwater supplies are adequate, then there is no need to connect to Indiana-American.
- General acceptance of groundwater supply as future source.

Feedback from the Focus Group:

- Conservation planning is seen as an important step for Valparaiso. The Focus Group recognized that implementing water conservation will reduce the need for new wells (e.g., reduce the need for future capital investment).
- Unanimous that conservation planning and education should begin immediately.
- Unanimous that local control and local service from the water utility is desirable.
- Learned about inherent protection of ground water supplies from pathogens.

Feedback from the Focus Group:

- Hospital commented that water supply results in scaling in chillers. Schools soften water supplies for kitchen equipment. Recommended that large water users be convened to discuss effects of hardness on their business and/or processes.
- Surprise that the customer survey participants did not list “safe drinking water” as top measure of water quality.
- Need to conduct next customer survey regarding softening. Survey design and data collection is important for making the decision about softening. If customer interest in softening is growing, then the VCU Board should develop a plan to implement softening (may include customer education component).

Feedback from the Focus Group:

- Need for VCU to educate customers on effects of using in-home softeners: sodium addition (a health issue) and environmental impacts.
- Recognition that providing a centralized softened supply is expensive, and that it may not be fair to as all ratepayers to pay for what only some of the customers perceive to be a problem with hardness, especially given that hardness is not a public health issue.
- Some expression that softer water is an important Quality-of-Life issue. However, a good number in the group also felt hardness to be an aesthetic issue (not a health or public policy issue). Some thought that the choice should be left to the customers to soften the water or not by adding a home softening unit.