AGENDA NO: C-1

MEETING DATE: June 11, 2019

AGENDA CORRESPONDENCE RECEIVED BY THE CITY COUNCIL FOLLOWING POSTING OF THE AGENDA IS ATTACHED FOR PUBLIC REVIEW PRIOR TO THE MEETING

Dana Swanson

From: Carole Truesdale [redacted]
Sent: Monday, June 10, 2019 3:14 PM
To: Dana Swanson
Cc: [redacted] Scott Collins
Subject: Re: June 11, 2019 Council Meeting Correspondence

Dana,
Larry said he is fine having published for the record.
He is in the middle of something and could not respond personally .
Kind regards,
Carole Truesdale on behalf of Larry Truesdale

Sent from my iPad

On Jun 10, 2019, at 1:48 PM, Dana Swanson <dswanson@morrobayca.gov> wrote:

> Dear Larry,
>
> Mr. Low has requested your correspondence submitted for the June 4th WRFCAC meeting be added to agenda correspondence for the June 11th City Council meeting. It seemed appropriate for me to ask your permission to do so before publishing. Please let me know your preference.
>
> Thank you,
>
> Dana Swanson
> City Clerk/Human Resources Manager
> City of Morro Bay
> Phone (805) 772-6205
> dswanson@morrobayca.gov

From: Mark Low [redacted]
Sent: Monday, June 10, 2019 1:42 PM
To: Dana Swanson <dswanson@morrobayca.gov>
Cc: citizensforaffordableliving <citizensforaffordableliving@gmail.com>; Council <council@morrobayca.gov>
Subject: June 11, 2019 Council Meeting Correspondence

G'day CC Swanson,

Would you please add the attached Analysis from Larry Truesdale to the June 11, 2019 meeting correspondence, because it relates directly to Business Item C-1
https://www.morro-bay.ca.us/ArchiveCenter/ViewFile/Item/5057

How is the Livick wastewater email harvest coming along?

Best regards,

Mark Low
Steadfast Concerned Citizen

Rob "phoning a friend" @ the 05 29 19 Public Works Advisory Board Meeting

@0:25:00 www.youtube.com/watch?v=ycYK6CcIe10

<L Truesdale GSI Report Analysis 2.pdf>

Analysis of the GSI Technical Memorandum Dated April 19, 2019

To: Eric Casares from Dave O'Rourke & Tim Thompson

The latest modeling report from GSI discloses important details of the WRF water recycling strategy. They propose to recycle 800 acre-feet of reclaimed wastewater each year by pumping it into the ground in the lower Morro Valley. Two months later the water will be recovered downstream at the Morro Bay well field west of the narrows. A number of consequential facts from the GSI memorandum and its earlier full report in 2017 are the topic of this analysis, which is broken into four major areas topics below:

1. The basic limitations from the 2017 GSI study[2] have not been addressed in the latest 2019 report so they are still valid. Thus the modeling has not been strengthened, only extended. The expanded report discloses what is hoped to be done via using the Lower Morro Valley's small, unconfined aquifer. For a summary of these significant limitations see page 24 of the 2017 GSI report[2] regarding groundwater levels, aquifer properties, streambed percolation rates, nature of the aquifer geometry and ocean interface, aquifer geometry, and underflow issues. Unfortunately all these limitations needed to be overcome to get good predictions from the modeling studies. The study is not proof that water can be injected and recovered without significant losses and changes in the water quality. It is only suggestive. The reports validity is dependent on the accuracy of the underlying assumptions used in the model.

2. The sea water levels used in the study are historical using the average mean sea level numbers from the past 38 years, not current seawater levels. The study indicates 25% of the injected tertiary-treated water will be necessary to stop saltwater intrusion into the aquifer. This study does not take into account that 31 years hence, by year 2050, sea level is conservatively estimated to be 1-2 feet higher than in 2017[3]. This is well within the 50-year lifespan of the proposed "forever" plant. The consequences of this are completely ignored and yet that *is* the environment that *needs* to be modeled by GSI, not what would be relevant for a plant built in the year 2000!

   Does this mean, that in the "real world", to protect the lower Morro Valley aquifer for fresh water recovery, it will be necessary for the City to utilize more than 25% of their expensive, tertiary treated water, possibly 35-50%, to have a viable recycling process? What is the ultimate cost of this recovered fresh water? At what sea level rise will it become economically impractical to utilize the wells? The economics for a viable recycling process and the justification for an expensive WRF is heavily dependent on *amount* and *cost* of the potable water recovered from the ground. This is necessary to determine the merits of the proposed approach for providing for the future of Morro Bay. Specifically, the recycling plan would waste between 250 and 400 acre-feet of the 800 acre-feet of reclaimed water. If losses like this are tolerable, a more efficient method to recycle this lower amount of water would only require a WRF that is 35-50% smaller. Such a WRF facility would still be larger than the current sewage treatment plant, which handles both Cayucos and Morro Bay, and would provide significant construction savings.

3. The 2012 DUDEK report[4] on Recycled Water Feasibility, prepared for the Morro Bay and Cayucos Sanitary Districts, reports recycled water is in the range of 60% more expensive than desalination. This cost differential will be further exasperbated by the need to utilize 35-50% of the initially reclaimed water to prevent saltwater intrusion into the well field. The City's touted purpose of recovering wastewater is to provide a buffer for Morro Bay during times of drought.

If so, a truly independent cost analysis of the recycled water from the proposed WRF versus desalination water needs to be done before breaking ground on the facility. This analysis needs to include the capital costs of building the tertiary treatment facility, the infra structure to pump it into the Lower Morro Valley and its operating costs compared to the costs of refurbishing the current desalination plant and its routine operating costs. Which *is* the more economical solution? After all, the Pacific Ocean is a non-depletable source of potable water while the Lower Morro Valley wells have a limited time before salt-water intrusion destroys their value and the value of the WRF.

Furthermore, in wet years the small, unconfined aquifer in the Lower Morro Valley will have little, if any, capacity to hold the additional 800-acre feet of recovered water. What will be done with the very expensive recycled water other than pump it into the ocean? If there is an alternative use for this "excess" water, what is the additional capital costs of implementing it? There is no such thing as an 800 acre-foot water tank and what if the area gets back-to-back wet years? The only solution for this amount of water is a reservoir and if used, it would be the option of choice rather than pumping any water into the Lower Morro Valley Aquifer! Unfortunately, no reservoir currently exists in Morro Bay and the costs of creating one is unknown, but likely high.

It should be noted State water costs Morro Bay about 0.5 cents a gallon going down to about 0.2 cents a gallon in 2022 when the aqueduct costs are fully paid off. Recycled water will cost between 1 and 3 dollars a gallon depending on the number of RO treatments required, ground water losses and infrastructure necessary to reach potable requirements. The state water is pristine with regards to purity as received[7].

4. The Lower Morro Valley wells are contaminated with unacceptable levels of nitrates[5,6]. The GSI report[2] rationalizes their presence due to farming in the Lower Morro Valley basin, but the nitrate source claims fall far short of proof. Their speculation would be a reasonable possibility if it were not for the analysis of nitrates in the well water using a nitrogen and oxygen isotope analysis technique. This is a significant study since the methodology used is a well-established forensic method to distinguish human waste contamination from manufactured nitrate sources. The difference between the isotope ratios for the two potential sources is heavily on the side of human waste. Also another analysis from the wells has found Sucralose in the water. This sweetener could only come from human waste! It is not a result of farming since it has no value for raising crops or animals. The nitrate source is very important for a variety of reasons.

   So what is the concern about nitrates, a mild carcinogen that is present in all sausages (technically a mix of nitrates and nitrites) as a preservative? Basically, nitrates are a manageable waste-stream impurity. They can be easily removed by ion exchange chromatography and possibly other affordable methods. However, in this case the nitrates are the proverbial "canary in the mine". The concern is that if they are from human waste, as suggested above, the well *water also contains everything else* that is in human waste, including Sucralose. For the waste to get into the Morro wells, it has to come from the sewage lines approaching the narrows from Cayucos and North Morro Bay. Those lines have not been properly maintained for at least a decade or two and the leakage from them must have heavily contaminated the soil that drains into the well field. The GSI modeling study is compatible with a nitrate sewage source, possibly

contaminated with a small amount of nitrates from farming, to achieve the isotopic ratios observed in the tests. It is not primarily from fertilizer since the isotopic analysis does not support such a conclusion[2]. However, the GSI modeling study does not recognize a flow path from North Morro Bay that would enable sewage to enter the well field indicating an important flaw in their model.

What no one to date has analyzed for is the many other materials in the water that are present in human waste. Of primary concern are drugs, both ethical drugs and their metabolites, as well as unethical drugs and their metabolites. These are difficult, biologically active substances to remove from water. Chlorination does not generally remove them. In fact it might modify some of them to make so-called "designer" drugs of unknown properties.

So, what spectrums of substances are likely to be contaminating the water supply? They will be drug types such as painkillers including oxycodone, Lyrica and fentanyl, anti-inflammatories such as steroids, CBD2 and ibuprofen, anti-depressants such as Paxil and Cymbalta, anti-anxiety drugs such as Valium, Midazolam and Librium, birth control substances, erectile dysfunction drugs, etc., etc. Basically any drug available from your neighborhood pharmacy is likely there. Also included would be psychoactive drugs such as marijuana (THC), cocaine, heroin, methamphetamine and a number of "designer" drugs, all of which are not available in the drug store.

The body tries to detoxify itself using the liver and kidneys to excrete metabolites and unmodified drugs. These substances are biologically active materials that should not be in the body unless it has a condition that warrants a prescription for treatment. No one knows what routinely taking a cocktail of such substances at low concentrations does to individuals, particularly vulnerable infants and the elderly, but it is a main reason recycled wastewater is not considered to be potable. It should be emphasized that chlorination does not remove these substances.

It is clear, if the source of nitrates is human waste, as the analytical data strongly indicates, the Morro wells should be considered contaminated and require full tertiary purification to approach potability. Dilution is not the solution as proposed in the GSI report. It is internationally recognized as unethical (and possibly illegal in many nations) to use dilution to reduce the concentration of contaminants because ultimately dilution does not eliminate dosing of the *entire quantity of contaminant* to the public. Purification to eliminate the contaminant is the *only* ethical solution. Likewise, using contaminated wells for the recycle of purified wastewater is not likely a goal of the Federal and State governments. To meet WIFIA requirements, a different process *needs* to be implemented. Using a contaminated aquifer does not solve any problems and would likely require a second, full RO treatment at the WRF. This would likely be prohibitively expensive compared to other options not seriously considered yet.

CONCLUSIONS:

- The latest GSI modeling study contains the same limitations as the 2017 report. No significant improvements have been implemented, particularly with regards to pathways for sub-surface flows to enter the Morro Bay well field ground water.

- The modeling utilized mean sea level from the last 38 years. Today's sea level and most importantly the expected sea level in 2050 and beyond need to be studied to validate the robustness of the water reclamation strategy over the life span of the WRF which will likely greater than 50 years, since the City calls it their "forever" plant.

- The 2012 DUDEK Recycled Water Feasibility Study done for Cayucos and Morro Bay Sanitary Districts estimates that desalination of seawater is at least 60% less expensive than treated, and recycled wastewater. Disposing of 35-50% of the water nearly doubles the cost of the remaining recycled water. Since there have been no breakthroughs in water purification since 2012, an independent comparative cost analysis of the proposed WRF water recycling approach, taking into account correctly done modeling by GSI and projected capital costs and operating costs, compared to refurbishing the existing desalination plant is warranted before contracts are let and groundbreaking begins! That is the only financially responsible path to take.

- Alternative plans are needed to address recycling the treated water for potable use. The inherent cost of the recycled water far exceeds agricultural use economics. The high percentage of the expensive recycled water required to retard saltwater intrusion into the Morro Bay well field should kill this approach. It just makes the finally recovered water even more prohibitively expensive.

- Since the wells are contaminated with human sewage, the treatment of the recovered ground water is needed to remove all pharmaceutical residues before human consumption regardless of what quantity of water is pumped into the Lower Morro Valley unconstrained aquifer. In fact, any water taken from the Morro Bay well field needs to be similarly treated before distribution to the public. It is unethical to expose the citizens to the contaminants in the water, even after heavy chlorination.

Authored by Larry K. Truesdale Ph. D Chemistry
June 2, 2019

REFERENCES:

1. GSI Water Solutions, Inc. Technical Memorandum, Morro Bay Water Reclamation Facility Groundwater Modeling, April 19, 2019, From: Dave O'Rourk and Tim Thompson, To: Eric Casares with copy to Rob Livik.
2. GSI Water Solutions, Inc. Final Report, Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility, May 16, 2017. Prepared for Michael K. Nunley & Associates and the City of Morro Bay.
3. California Coastal Commission Sea Level Rise Policy Guidance, Final adopted Science Update, November 7, 2018, Chapter 3, Sea level Rise Science.
4. DUDEK 2012 Recycled Water Feasibility Study, March 9, 2012. Prepared for the City of Morro Bay and Cayucos Sanitary District Wastewater Treatment Plant Upgrade Project.
5. Cleath & Associates Morro Basin Nitrate Study, Prepared for the City Of Morro Bay, December 2007.
6. The "Morro Bay Nitrate Study": Issues and Concerns. Richard E. T. Sadowski, Marls Jo Burton, Brian Stedjee, April 2008.
7. Larry Truesdale, Bay News, "The Myth of Water Independence", August 2018. https://calmorrobay.com

Item C-1

Review of Concept Design Report for the Water Conveyance Facilities Project and the Groundwater Modeling Technical Memorandum for the Water Reclamation Facility

Morro Bay, CA
June 11, 2019

CITY OF MORRO BAY
WATER RECLAMATION FACILITY PROJECT

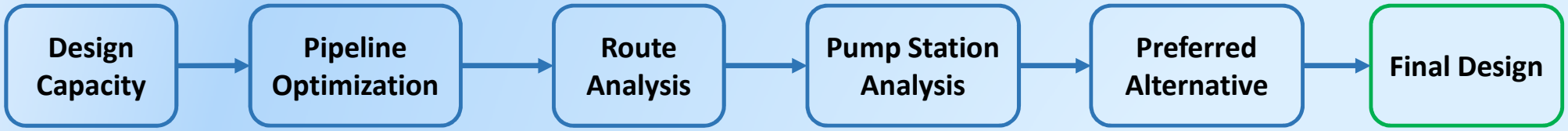
Recommendations

- Receive the Final Draft Concept Design Report
- Provide comments and input on the presentation for the Groundwater Modeling Technical Memorandum

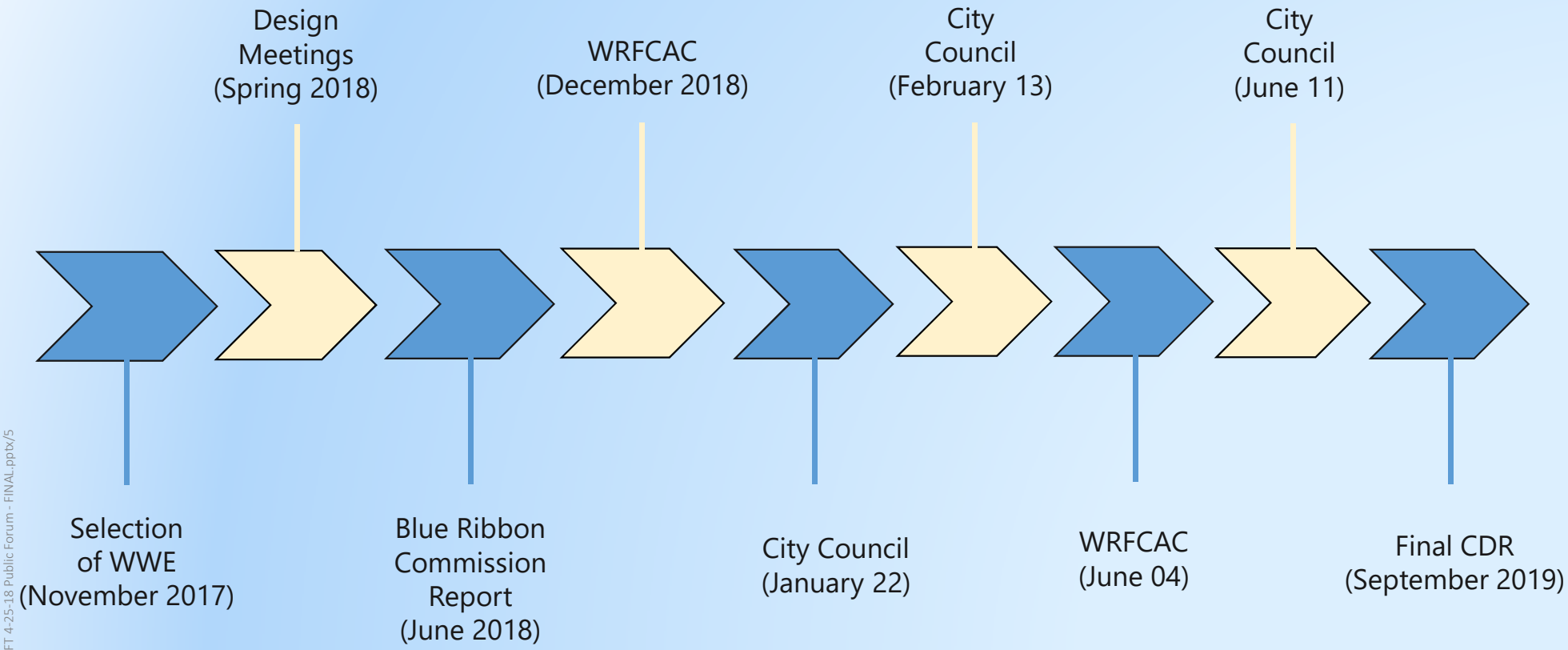
Final Draft Concept Design Report

CITY OF MORRO BAY
WATER RECLAMATION FACILITY PROJECT

Concept Design Report sequence



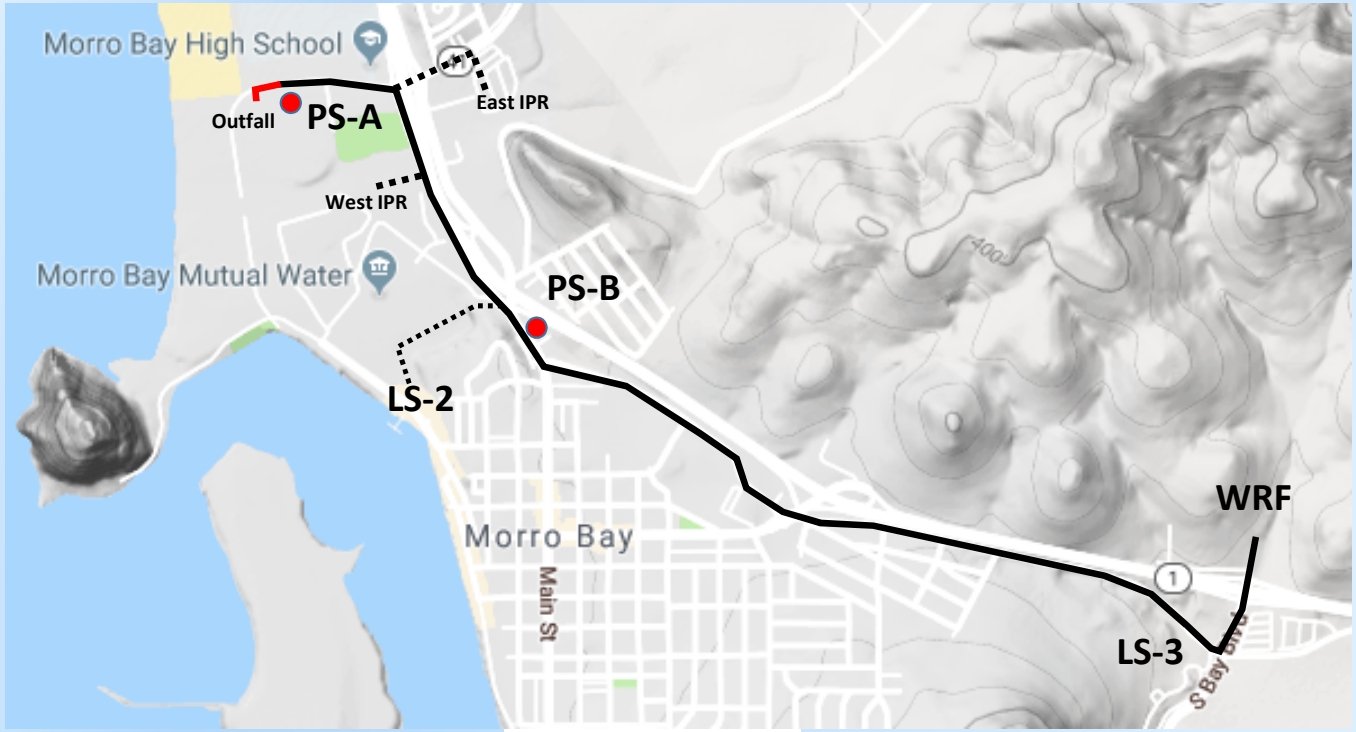
Conceptual design activities



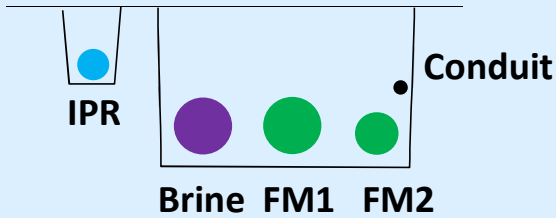
Preferred Alternative

CITY OF MORRO BAY WATER RECLAMATION FACILITY PROJECT

Design Capacity → Pipeline Optimization → Route Analysis → Pump Station Analysis → **Preferred Alternative** → Final Design



West Alignment



Schedule changes since initial draft

Milestone Activities	Initial Draft (November 2018)	Final Draft (May 2019)
60-Percent Design Submittal	July 09, 2019	August 30, 2019
90 Percent Design Submittal	October 15, 2019	December 20, 2019

52	Production (PRIOR to receipt of Survey, Geotech, Utility Locating)	60 days	Tue 12/18/18	Mon 3/11/19
53	Production (AFTER receipt of Survey, Geotech, Utility Locating)	30 days	Mon 7/8/19	Fri 8/16/19
54	Internal QA/QC and Revisions	10 days	Mon 8/19/19	Fri 8/30/19
55	Submit to City	0 days	Fri 8/30/19	Fri 8/30/19

Bid Opening	April 03, 2020	June 17, 2020
Contractor Notice to Proceed	May 11, 2020	July 22, 2020
Construction Substantial Completion	September 17, 2021	November 26, 2021

Input from WRFCAC

- Use of plastic versus metal pipe
  - Cost
  - Daily production rates
- Detailed design questions
  - Isolation valves
  - Minimum cover requirements
  - Pressure testing
- Traffic impacts from pipeline realignment
  - South Bay Boulevard overpass

Questions

CITY OF MORRO BAY
WATER RECLAMATION FACILITY PROJECT

Groundwater Modeling Technical Memorandum

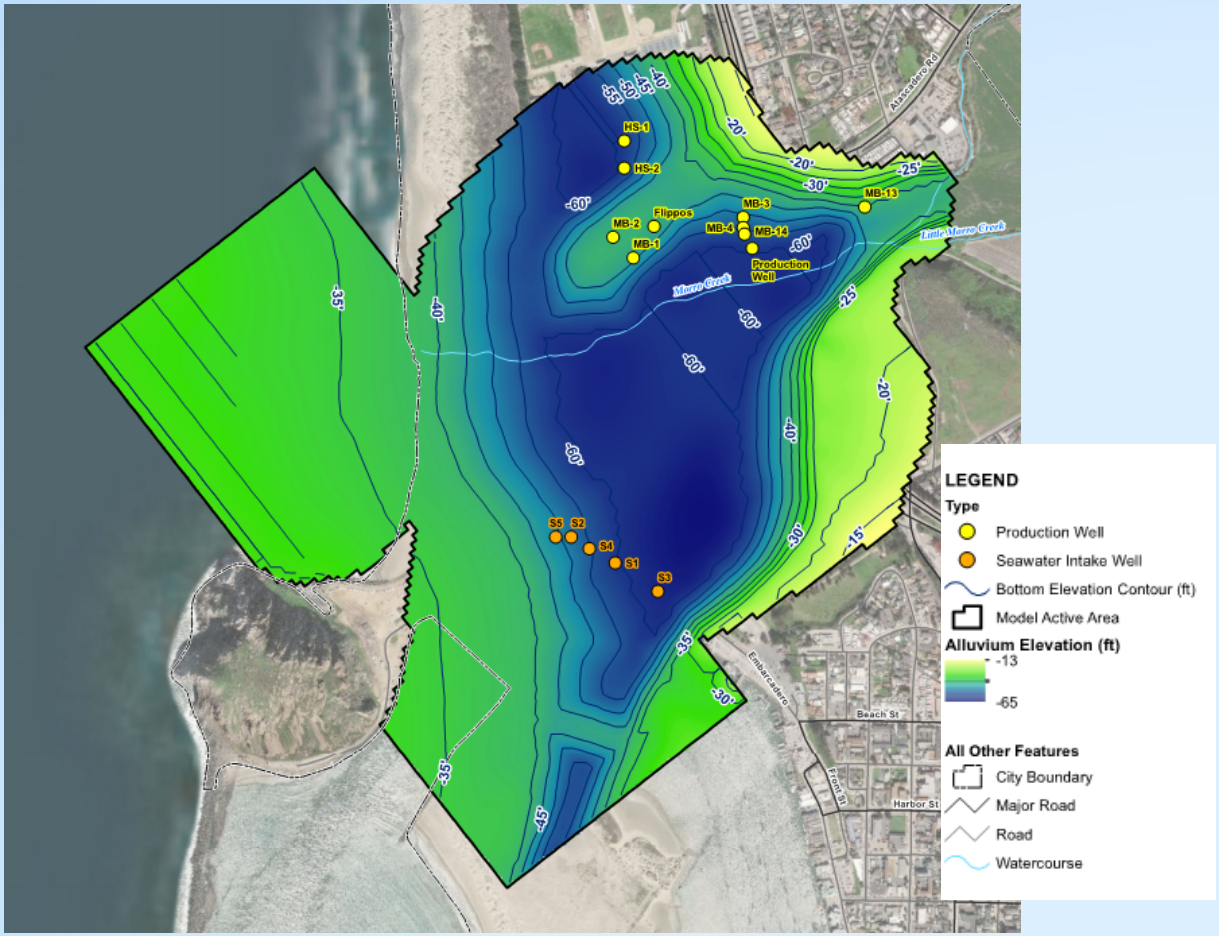
CITY OF MORRO BAY
WATER RECLAMATION FACILITY PROJECT

Phase 1 scope of work

- Investigate pumping of the City's full permitted allotment of 581 AFY without injection
- Analysis of possible groundwater nitrate levels under different injection scenarios
- Analysis of potential changes in groundwater chemistry due to potential salt water intrusion

Phase 1 approach

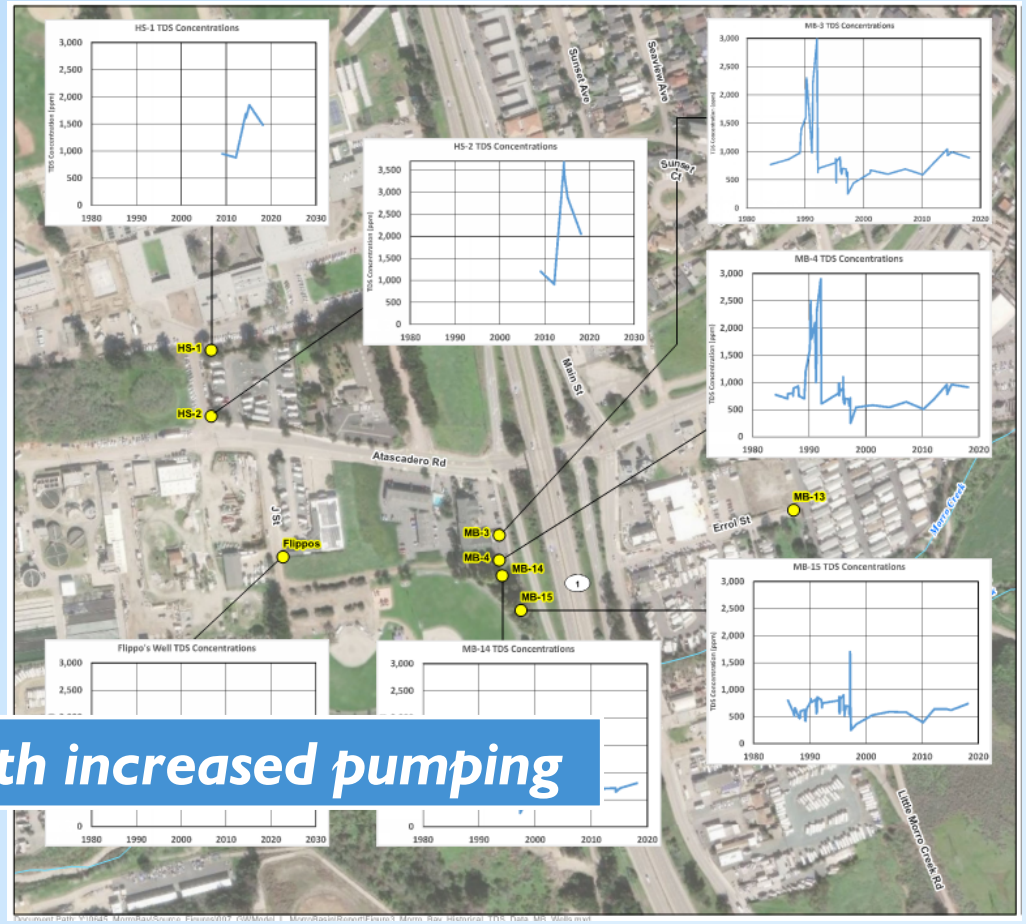
- Pumping data between 1965 and 2018 from 7 wells
- TDS and nitrate data to early 1980s
- Combination of MODFLOW and MODPATH



Impacts of pumping on seawater intrusion

CITY OF MORRO BAY WATER RECLAMATION FACILITY PROJECT

- 581 AFY extraction without injection
- 38-year simulation period
- 5,000 to 17,000 mg/L[1]



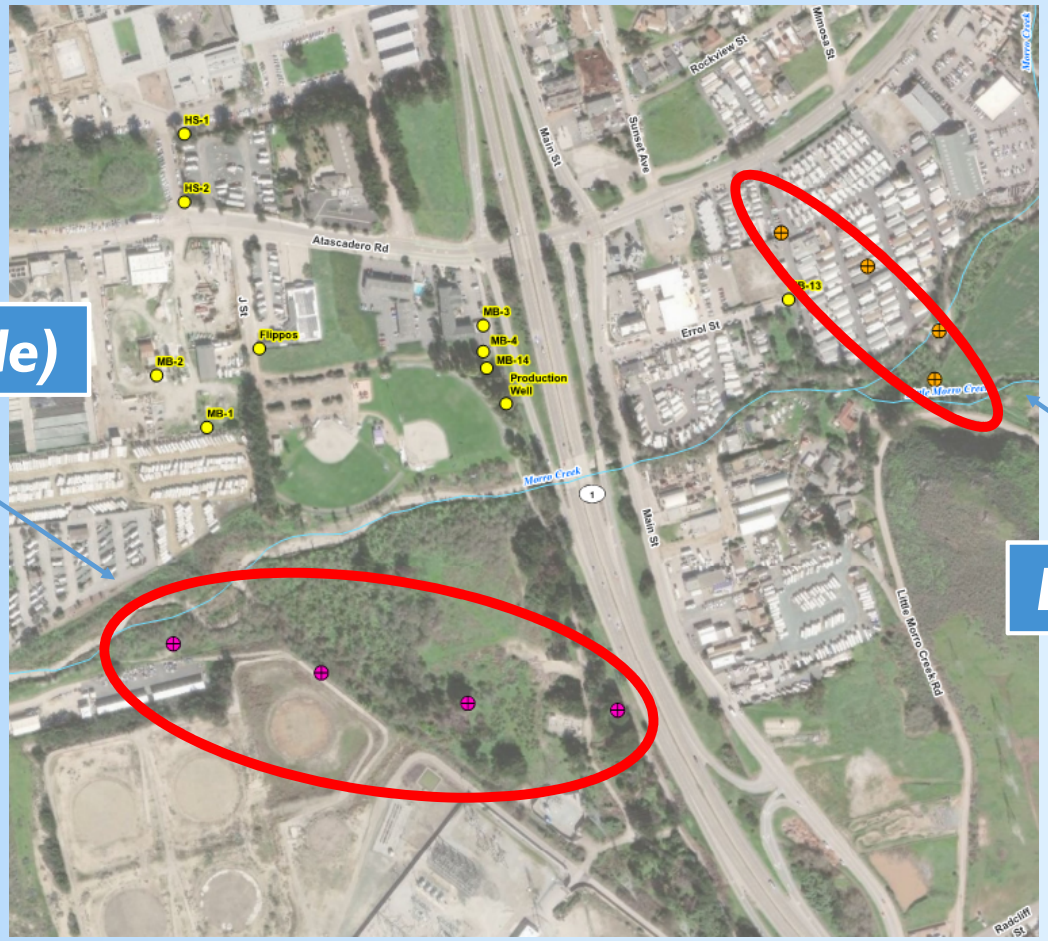
At risk of seawater intrusion with increased pumping

1. Secondary MCL for TDS is 1,000 mg/L

Modeled injection well locations

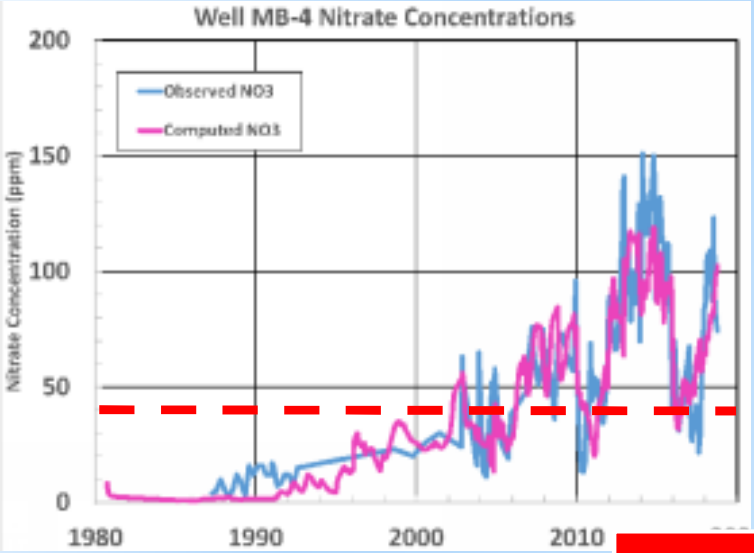
CITY OF MORRO BAY WATER RECLAMATION FACILITY PROJECT

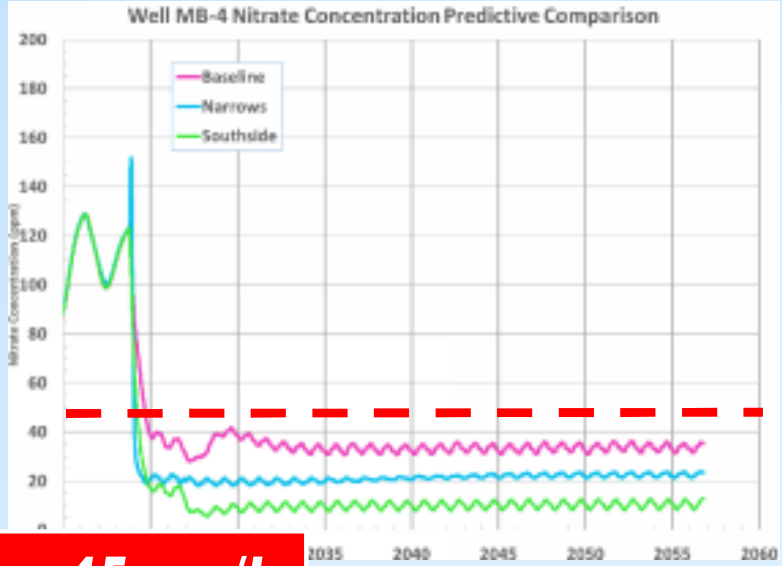
West (Southside)



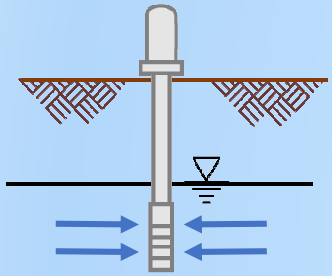
East (Narrows)

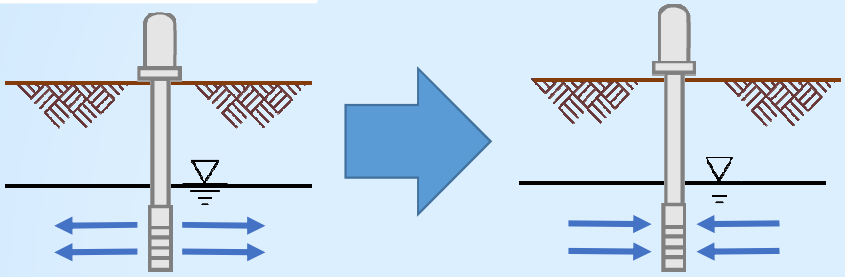
Impacts of injection on nitrates



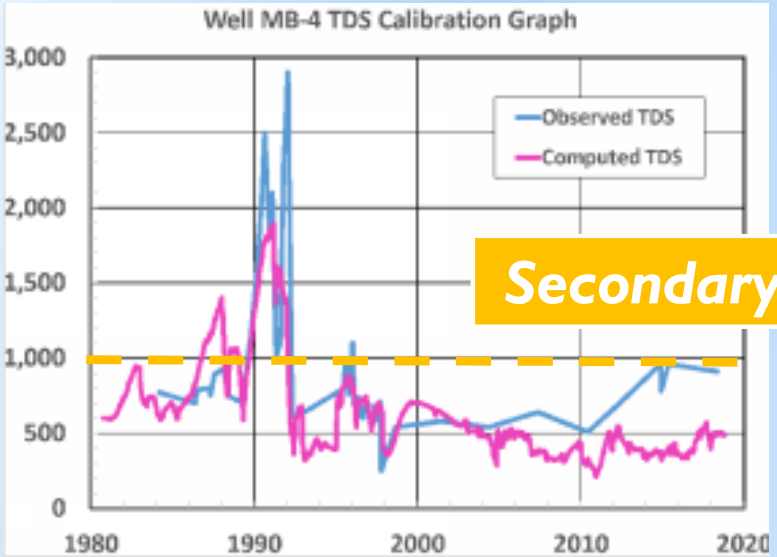


Primary MCL (NO_3) = 45 mg/L

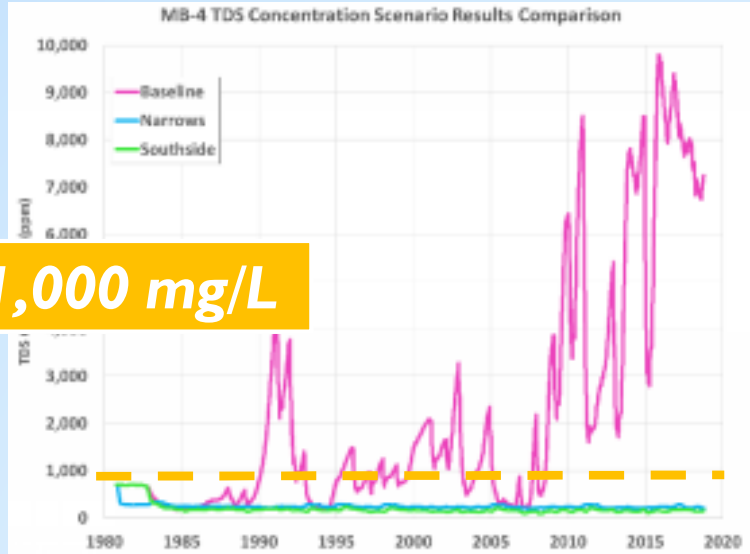


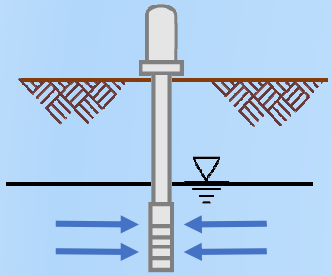


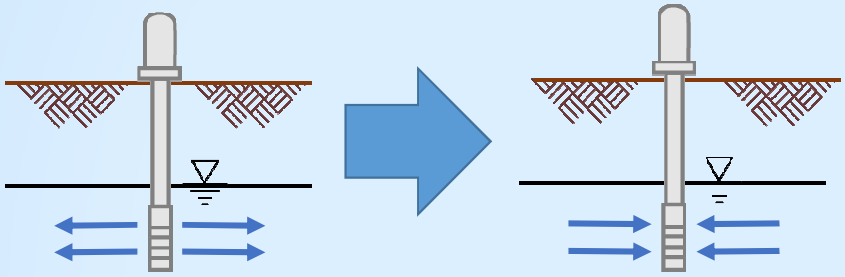
Impacts of injection on nitrates



Secondary MCL (TDS) = 1,000 mg/L







DRAFT 4-25-18 Public Forum - FINAL.pptx/16

Phase 2 status update

- Evaluation of injection locations
  - CPT for the East Area – Completed
- Prepare test well design and permitting
  - East Area
    - Install piezometer on Errol Street – June 13, 2019
    - Pump testing for MB-13 well – June 2019
  - West Area
    - Work Plan sent to Vistra – June 04, 2019
  - Perform seawater intrusion monitoring – Ongoing (December 2018)
  - Perform groundwater level monitoring – Ongoing (December 2018)

Input from WRFCAC

- Source of the nitrate contamination (agricultural vs. exfiltration)

The potential sources of nitrate contamination to ground water at the City's Highway 1 well field include agricultural and turf fertilizers, private septic system discharges, sewer exfiltration, animal operations, and miscellaneous sources. Of these, turf fertilizers, private septic system discharges, animal operations, and miscellaneous sources are not considered capable of significant contributions to nitrate contamination at the well field. The rationale for eliminating these sources are:

Sewer exfiltration is the leakage of raw wastewater from a sewer system into the ground. The potential for sewer exfiltration as the source of nitrate contamination in ground water has been evaluated based on a review of the local sewer system, the general mineral quality of local wastewater and the isotope results. These evaluations, detailed below, indicate that sewer exfiltration is not a major source of nitrate contamination in ground water at the City well field.

The results of this study indicate that the main source of nitrate contamination in ground water at the City's Highway 1 well field is from nitrogen fertilizer applications associated with vegetable farming operations in the lower Morro Valley. Historical land use trends, water quality trends, and recharge

Morro Basin Nitrate Study (Cleath & Associates, 2007)

Recommendations

- Receive the Final Draft Concept Design Report
- Provide comments and input on the presentation for the Groundwater Modeling Technical Memorandum

Questions and Discussion

CITY OF MORRO BAY
WATER RECLAMATION FACILITY PROJECT

AGENDA NO: C-3 and C-4

MEETING DATE: June 11, 2019

AGENDA CORRESPONDENCE RECEIVED BY THE CITY COUNCIL FOLLOWING POSTING OF THE AGENDA IS ATTACHED FOR PUBLIC REVIEW PRIOR TO THE MEETING

Peck Planning and Development, LLC
Planning Development Economics
[redacted], Morro Bay, CA 93442

June 8, 2019

Honorable Mayor and Council,

I am a Director on the Morro Bay Chamber of Commerce Board and I am writing to support of Items C-3 and C-4 or your June 11, 2019 agenda. Personally, I have been involved in various Chambers of Commerce throughout the state, and your local Chamber is one of the most effective and finest, under its current leadership. The proposed work efforts in Items C-3 and C-4 are important to support the retention of existing business, retain and grow the local tourism market, and to promote new investments and new businesses.

The City and the business community benefit from a Visitor Center staff that engages visitors once they arrive into town and who help our visitors make the most of their time here. In addition to their current fixed-base operations, we would like to see our staff get out into the field to engage visitors on the street, acting much like "hosts" and "guest services" personnel. The objective is to encourage longer stays, overnight stays, and more spending in the City. During my own walks along Morro Bay Blvd, Main Street or the Embarcadero, I often see our visitors looking around curiously. These visitors could benefit from some friendly help, and to make their stay more enjoyable (and maybe help them find that hidden treasure of a business just around the corner or just up the street that may be out of sight). Don't we all remember that place, hotel, country or city, etc. that was a little bit special because someone took the time to say "can I help you?" Don't we want to go back to those places? I also see benefit from having the Chamber staff share and distribute information about upcoming city-wide events. The Chamber would like to continue delivering visitor services as outlined in the agreements to further enhance the local tourism industry that is so important to the economic health of the community.

The Chamber Board of Directors has approved and is supportive of the framework proposed for Economic Development facilitation and business support services. We have worked with our CEO to position our organization to be ready to deliver services such as those proposed. We believe that, with good oversight and professional management by our staff, the efforts outlined in the proposed framework will promote expansion of existing businesses encourage prospective businesses to know that it " a new day to do business in Morro Bay". Businesses enjoy a lot of choices and are openly recruited by other communities. We also know that realizing economic sustainability for the community and for the City in particular, will require new investments and developments. The business attraction and business retention strategies described in Item C-4 are essential to this success.

I encourage you to approve Items C-3 and C-4 as proposed.

Sincerely,

Stephen J. Peck, AICP
Director, Morro Bay Chamber of Commerce
Co-Chair, Chamber Governmental Affairs Committ ee

Dana Swanson

From: michael samaniego [redacted]
Sent: Sunday, June 09, 2019 10:23 PM
To: John Headding; Marlys McPherson; Dawn Addis; Jeffrey Heller; Robert Davis; Dana Swanson; Scott Collins
Subject: City Council Meeting June 11, 2019 Items: C-3 & C-4

June 9, 2019

Honorable Mayor and Council,

I am the Morro Bay Chamber of Commerce board chair and I am writing in regards to Item C-3 and C-4.

Item C-3

The City and business community benefit from a Visitor Center staff that engage visitors once they arrive into town. While it might be true most of our out of town guests have visited Morro Bay multiple times and may know how to navigate the city, having a visitor center staff member walking the streets engaging the visitor would be helpful. Working at Morro Bay golf course has demonstrated the diversity of tourist to Morro Bay and the need for having a welcoming smiling face to distribute information about upcoming city wide events.

Item C-4

Our Board of Directors has approved and is supportive of the framework proposed for Economic Development facilitation and business support services. We have worked with our CEO over the course of years now to position our organization to be ready to deliver services such as those proposed. We believe that, with good oversight and professional management by our staff, the efforts and deliverables outlined in the framework will be able to catalyze business growth and communicate to our current business owner/operators and prospective in region that it is a new day to do business in Morro Bay. Morro Bay is becoming an eclectic energetic city with a new fresh perspective to the future. The perspectives and strategies in Item C-4 are emblematic of the future business landscape for Morro Bay.

I encourage you to approve Items C-3 and C-4 as proposed.

Respectfully,

Michael Samaniego
Golf Professional

Item # C-4: Economic Development Partnership with Chamber – ED Point Person/Facilitator

SCOTT COLLINS

CITY MANAGER

JUNE 11, 2019

Background

Strategic Roadmap

- Key recommendation: Identify point person for Economic Development (ED)
- Preferred position for point person, Deputy CM, was cut from Budget

Pursued limited partnership with Chamber

- 4MB - $30,000 to Chamber to support business communication/outreach and support
  - Wayfinding, Downtown tree lighting, business support and trainings

Experience further underscores need for point person

Partnership with Chamber

Build upon the 4MB effort

- Similar effort/agreement in place for City of Paso Robles and their Chamber

3 Key areas of support from Chamber

1. Business Support – Assist existing businesses in Morro Bay achieve their goals.
2. "New Day in Morro Bay" – Marketing City as place to do business to region and beyond.
3. Permit Process Support and Review – Support individual businesses and review the existing planning permit review process.

FY 2019/20 Budget includes up to $62K for such efforts

Partnership Communication and Structure

City Manager and Chamber CEO consistent communication

Oversight Committee

- Chamber staff/board, Council and City staff participation

Chamber and City maintain independency….point person will remain employee of the Chamber, and not the City and will not report to the City Manager or other City staff.

Agreement Performance Data

Initially focus on output measures

- Contacts made, meetings held, presentations hosted, permits stamped complete, training attendance, completion of marketing materials, new microsite (ED website) launch

Will take time for efforts to lead to noticeable changes, and thus outcome measures, such as new businesses started, and enhanced revenues, would be part of outyears of the partnership.

Staff Recommendation

Direct staff to work with Chamber staff to develop an agreement, along the terms discussed in the staff report, and return for Council and Chamber Board review and approval in late June 2019.