

APPENDIX A

Greenhouse Gas Emissions Analyses

Illingworth & Rodkin, Inc.

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VIA email: jschwarz@davidjpowers.com

**SUBJECT: Curtner/Union Retail Center Expansion –
Greenhouse Gas Emissions Assessment**

Dear John:

Greenhouse gas emissions associated with expansion of the Curtner/Union Retail Center were predicted. The 4-acre site bounded by Curtner Avenue, Union Avenue, and South Bascom Avenue currently includes a grocery store, restaurant and several single-family residential structures. The project would involve replacing a paper shredding company, a salon, and two other structures on the southeast corner of the shopping center with a 3,911 square foot (s.f.) fast food restaurant with a drive-thru, a 4,134 s.f. bank, and 1,375 s.f. of additional retail space. The existing Lunardi's market and Wendy's restaurant would remain. This assessment predicts the change in emissions associated with the expansion of the shopping center.

Greenhouse Gas (GHG) Significance Thresholds

The BAAQMD recently released its updated CEQA Air Quality Guidelines that contain methodology and thresholds of significance for evaluating greenhouse gas (GHG) emissions from land use type projects¹. The BAAQMD thresholds were developed specifically for the Bay Area after considering the latest Bay Area GHG inventory and the effects of AB 32 scoping plan measures that would reduce regional emissions. BAAQMD intends to achieve GHG reductions from new land use developments to close the gap between projected regional emissions with AB 32 scoping plan measures and the AB 32 targets. The BAAQMD applies GHG efficiency thresholds to projects with emissions of 1,100 metric tons of CO₂e (carbon dioxide equivalency) or greater. Projects that have operational emissions below 1,100 metric tons of CO₂e per year are considered to have less-than-significant GHG emissions.

Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions were computed for the full build out scenario of the proposed project. Specifically, construction emissions were computed for an assumed 1-year construction period with the first full operational emissions beginning in 2013. The URBEMIS2007 model was used to compute annual air pollutant emissions. The URBEMIS2007 input files were then processed with the Bay Area Air Quality Management District's (BAAQMD) new Greenhouse Gas Model (BGM).

¹ BAAQMD. 2011. BAAQMD CEQA Air Quality Guidelines. Updated in May.

For existing conditions, the site was assumed to include a 32,643-square foot shopping center. The proposed project would expand the shopping center to 42,063 by adding 9,240 square feet of new retail uses. The GHG emissions associated with construction of 9,240 square feet on 1.28 acres were predicted. The GHG emissions associated with the existing shopping center uses in 2011 and projected for 2013 were predicted. The proposed project, i.e., expansion of the shopping center, was assumed to be fully operational in 2013. GHG emissions were predicted for the project in 2013 and compared to existing conditions in 2011 and 2013.

Construction Emissions

The URBEMIS2007 model was used to predict construction emissions in the form of CO₂. An approximate 1-year construction schedule was assumed in the modeling. Construction phases included the following:

- Demolition of approximately 7,000 square feet of uses was assumed to last one month;
- Fine site grading and utility placement was assumed to last one month;
- Building construction would start when site preparation is completed and last for about 10 months; and
- Paving was assumed to occur at the near the end of building construction and would last one month.

CO₂ emissions associated with construction were assumed to all occur in 2012. Under this scenario, construction of the project would emit 119 metric tons of CO₂. These would be temporary emissions. Neither the City of San Jose nor BAAQMD have quantified thresholds for construction activities. However, the emissions would be below the lowest threshold adopted by BAAQMD.

Operational Emissions

BAAQMD developed a GHG model referred to as the BAAQMD GHG Model or BGM. BGM is an Excel workbook tool that uses the URBEMIS2007 file to provide GHG emissions in the form of equivalent CO₂ emissions (CO₂e) in metric tons per year. Unless otherwise noted below, the model defaults for the San Francisco Bay Area were used.

The URBEMIS2007 modeling file for the Year 2020 was used in the BGM model. BGM provides emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. Annual emissions in term of metric tons per year are provided in Table 1.

Model Year

The model uses mobile emission factors from the California Air Resources Board's EMFAC2007 model. This model is sensitive to the year selected, since vehicle emissions have and continue to be reduced due to fuel efficiency standards and low carbon fuels. The Year 2011 was selected for existing conditions and 2013 was selected for the build-out year.

Traffic

Trip generation estimates provided by Hexagon Transportation Consultants were input to the model. This included rates for the existing shopping center and the proposed project. No adjustments were made to the trip generation rates for passby, walking, bicycling or transit. Default trip lengths included in the model were used. Since the project is a neighborhood shopping center, the model trip lengths that are over 7 miles per trip, likely result in over-prediction of emissions.

Other Sources

Adjustments were made either in the BGM model or to the model output. These include:

- A minimum waste diversion rate of 50%, consistent with San Jose waste diversion rate, was assumed;
- Emissions associated with electricity consumption output by BGM were adjusted to account for Pacific Gas & Electric utility's (PG&E) lower emission rate. BGM uses a Statewide rate of 805 pounds of CO₂ per megawatt of electricity produced, while the rate for PG&E is much lower. PG&E publishes projected emission rates of 559 pounds per megawatt hour in 2011 and 431 tons in 2013. These are substantially lower than the BGM model default values.

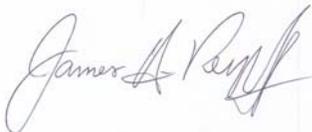
The GHG emissions associated with the proposed project are provided in Table 1 that is attached to this letter. Existing uses at the project site currently generate approximately 4,242 metric tons of CO₂e per year. In 2013, these uses, if unchanged would generate slightly lower emissions of 4,024 metric tons. The proposed project would expand the shopping center. As a result, the project site would produce 4,816 metric tons of CO₂e. This would be an increase 574 metric tons over existing conditions and 791 metric tons over the levels expected by the existing uses in 2013.

According to the BAAQMD CEQA Air Quality Guidelines, projects with operational emissions increases of less than 1,100 metric tons annually of CO₂e would be considered to have less a less than significant impact with respect to GHG emissions.

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This concludes our evaluation of GHG emissions from the proposed project. Please call us if you have any questions regarding this report.

Sincerely,



James A. Reyff
Illingworth & Rodkin, Inc.

Table 1 Operational GHG Emissions – in metric tons per year

Project Name:		Curtner/Union Retail Center		
Project Years:		2013		
Emissions of CO2e in Metric Tons Per Year				
Source Category	BGM Unmitigated Emissions	Emissions with Project and City Conditions		Emissions Converted for PG&E rates adjusted for RPS
Existing Shopping Center in 2011				
Transportation:	3810	3810		3810
Area Source:	0	0		0
Electricity:	477	477		332
Natural Gas:	71	71		71
Water & Wastewater:	2	2		1
Solid Waste:	56	28		28
			Total:	4242
Existing Shopping Center in 2013				
Transportation:	3669	3669		3669
Area Source:	0	0		0
Electricity:	477	477		256
Natural Gas:	71	71		71
Water & Wastewater:	2	2		1
Solid Waste:	56	28		28
			Total:	4024
Proposed Shopping Center in 2014				
Transportation:	4354	4354		4354
Area Source:	0	0		0
Electricity:	619	619		332
Natural Gas:	92	92		92
Water & Wastewater:	2	2		1
Solid Waste:	73	36		36
			Total:	4816
2013 Net Increase in GHG Emissions:				791
Construction Emissions from URBEMIS		US tons/year	Metric tons/year	
2012		131	119	
Model Adjustments:	1) Used URBEMIS2007 with Traffic Study trip generation - no trip reductions applied 2) Used PG&E published emission rates for 2011 and 2013 5) Assumed 50% waste diversion through recycling programs			