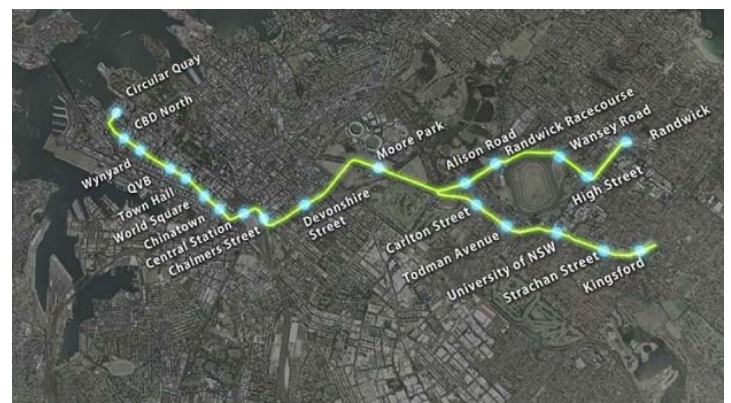


# THE IMPACTS OF LIGHT-RAIL CONSTRUCTION ON GEORGE STREET



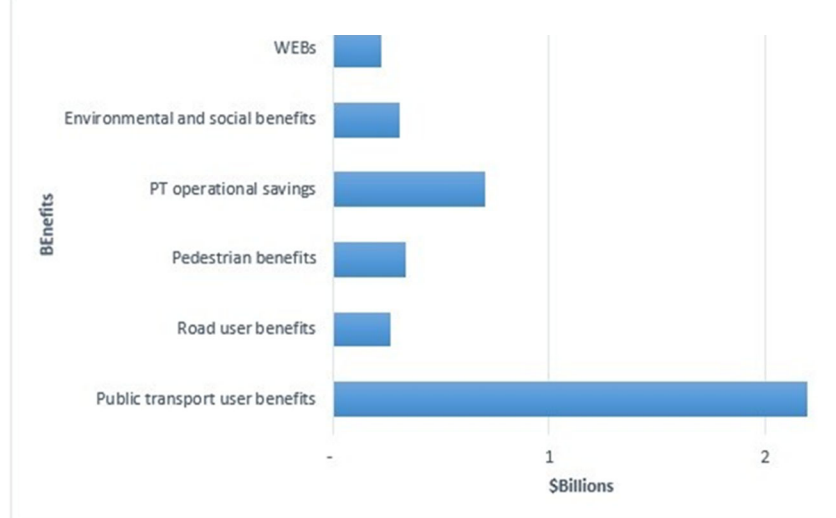
**TABLE OF CONTENTS INCLUDING PAGE NUMBERS:**

- Title Page – 1
- Table of Contents – 2
- Problem Investigated – 3
- Reasons for selecting problem or issue – 3
- Evidence of issue – 4, 5
- Plan of investigation used – 5, 6
- Description of investigation with, with results obtained in graphs and tables – 6, 7, 8
- Conclusions based on results – 8, 9
- Limitations of conclusions – 9
- Evaluation of conclusions and process of investigation; problems experienced – 9
- Suggestions for follow up research – 9
- Acknowledgements – 9
- References – 10
- Appendices – 11



**MAP OF LIGHT-RAIL CONSTRUCTION ON GEORGE STREET**  
(Black Line)

**ECONOMIC BENEFITS OF LIGHT-RAIL ARE ILLUSTRATED WITHIN THIS GRAPH PUBLISHED BY**  
**‘TRANSPORT FOR NEW SOUTH WALES’**



**Problem investigated:**

This report will investigate the impacts of light-rail construction on George Street; specifically focusing on its disruption to the city-lifestyle.

The construction began in late 2015, under the state-governments five-billion-dollar *Tomorrow's Sydney* project. This project aims to revitalise and advance the culture of Sydney to mega-city status.

The disruptions are both physical and metaphysical, where the surrounding environment, economy and public behaviour is inflicted.

Construction on George-Street is undeniably controversial, which is evident in society's differing perceptions where short-term loss is contested by long-term gain. In essence, the current damage to the environment and city-lifestyle is either acknowledged or dismissed; depending on whether or not the person believes the project to be worthwhile and needed for the future of Sydney.

Nonetheless, the implementation and construction of light-rail within George Street is ultimately and unquestionably damaging the surrounding environment, economy and civilian-life. Material waste and pollution not only decreases air quality, but also severely impedes the visual attractiveness of the region. This has subsequent and adverse effects on the local economy, where patronage decreases and so does sales.

Ultimately, the disruption caused by construction on George Street deserves to be investigated as a geographical issue.

**Reasons for selecting problem or issue:**

As mentioned above, the disruption to the city-lifestyle which is being caused by construction on George Street, in itself - constitutes the need for a geographical investigation to take place.

Although the essence of this reasoning is simplistic, the problem itself is highly contentious and complex. This comes as a result of the multifaceted nature of the issue, where many stakeholders with differing perspectives are directly involved and impacted by construction on George Street.

To expand on this, stakeholders include; daily commuters that need to access George Street, individuals working on George Street, drivers reliant on George Street and even citizens exploring Sydney's Central Business District. These groups are of course opposed to the State Government and construction groups contracted for the development. All of these stakeholder's amount to the selecting of the issue and are vital for the investigation.

This stakeholder disruption is corroborated by City of Sydney's Councillor Linda Scott, "It will affect people who study, people who work, it will affect tourism and it will affect the whole inner city". Evidently, the impacts of light-rail construction on George Street are far reaching. (*Lauren O'Connor, 'South East Light Rail could cause havoc for George Street', City Hub by ALT Media, 11/12/2014*)

Fundamentally, individual perceptions on the construction of light-rail on George Street are divided. The split occurs when short-term complications and loss is outweighed by the long-term benefits and gains which will result from the development. It is then a matter of optimism versus pessimism which adds onto the provocative nature of the issue.

Therefore, the issue was selected primarily due to its contentious nature; which derives from its disruptions to the city lifestyle and it's impacts on an array of stakeholders.



**Evidence of issue:**

The disruption of light-rail construction on George Street, and even more broadly on greater Sydney is perfectly evident in the State government's recent advertisement campaign "*We're Building Tomorrow's Sydney*". This video campaign acknowledges that "it won't be easy and there will be disruptions", but convinces individuals to persevere and withstand the impacts as there is a newer and greater Sydney coming soon. The advertisement campaign comes at a time where public annoyance with the construction is at its highest, as demonstrated through individual responses to my conducted surveys.

Additionally, various newspaper articles and reports also make evident of the issue of development on George Street.

Environmental and social impacts include the removal of 800 trees and multiple on-street parking spaces. These impacts are heightened by fears that physical construction on George Street will result in similar circumstances as those on the Gold Coast, where months of noise, dust and reduced road space compelled businesses to demand the end of construction. (*Jim O'Rourke, 'It's costing \$1.6 billion, but new tram line will also cause chaos for cars and pedestrians in the city', The Daily Telegraph, 14/11/2013*)

Disruption to the city lifestyle is evident in it being "One of the biggest challenges this city will ever face", as described by Duncan Gay the Minister for Roads. This statement is amplified by NSW Opposition Leader Luke Foley, who said that construction would prove to be a "permanent congestion nightmare" – creating a "Berlin Wall" through the heart of Sydney. (*Melanie Kimberly, 'Sydney's light rail construction: what you need to know about buses', The Sydney Morning Herald, 2/10/2015*)

That same Sydney Morning Herald article also recognizes that over the course of light-rail construction on George Street, buses entering the heart of Sydney's CBD will be reduced by 45%. This comes as a result of the arterial nature of George Street, where the street is not only important to retail but also vital for transport around the city.

This raises the concern of the future impacts that light-rail will have on congestion and travel times, it raises the possibility that the project could easily fail in its aims and adversely increase congestion and travel times within Sydney's CBD. Such disruption is evident in a photograph published by the Daily Telegraph, where road closures along George Street has have placed CBD traffic in disarray.



As for the impacts to business and George Streets local economy, results are divided and dependent on the size of the businesses. According to Patricia Forsythe the executive director of Sydney's Business Chamber, construction on George Street has resulted in no drastic changes to consumer expenditure. However, according to Angela Vithoukias who is City Councillor and also owner of Vivo Café on George Street, "small businesses on or around George Street have been severely and immediately impacted". (*Heather McNab, 'Light rail construction delivers mixed results for George Street retailers this Christmas', The Daily Telegraph, 13/1/2016*)

These severe and immediate impacts can be validated by my personal findings, where the majority of George Street businesses that were surveyed have stated that construction has resulted in decreased sales.

In spite of such numerous impacts outlined above, it is equally important to note the projected benefits of the development and construction taking place on George Street. Such benefits are outlined in an economic journal released by Jessica Farrelly.

Firstly, ever since the light-rail project begun in 2015, land values on George Street have soared by more than \$5000 per square metre in over a year. This substantial increase is beneficial to landowners, but equally disastrous for tenants who are now expected to pay higher weekly rents. Additionally, the project is expected to boost NSW's economy by \$4 billion dollars, which is an adequate return from the \$2.1-billion-dollar investment that is the 'Light-rail' project. This is strengthened by the projected increase in consumerism on and around George Street, since the project itself was partly-launched to cater for the anticipated increase of 1.6 million people who will work and live in Sydney's CBD by 2035. (*J. Farrelly, 'Sydney Light Rail boosts George Street land values', 28/4/2016*)

Environmental benefits are also expected to strengthen the operational integrity of light-rail, where the 'CSELR Business Plan Summary' predicts that light-rail service will reduce greenhouse gas emissions by 23 300 tonnes per year over 30 years. This is a result of light-rail replacing bus and personal-vehicle trips, it must be noted however that only 2% of all existing car-users are expected to transfer to light-rail services. (*The Urbanist, 14/1/2015*).

Ultimately, from a selection of various secondary sources the impacts of light-rail construction on George Street have been demonstrated. These impacts however are downplayed by the projected benefits of the development, which is predicted to improve the city-lifestyle through boosting its economy and environment. This creates the intentional sense that short-term and current inconveniences are well-worth the long-term gains that are expected to result from a new and improved Sydney.

Overall, construction on George Street has proven to be contentious and therefore this investigation has been proved necessary.

#### **Plan of investigation used:**

The investigation of the contentious issue of light-rail construction on George Street will be undertaken in two-parts. First being the primary data collection which involves the gathering of observations to create information. Such observations include photographs of the subject area, surveys and questionnaires of various target individuals including business owners, staff members, drivers and citizens. Additionally, although it was intended for physical testing of air quality to take place with an air quality monitor, such resources could not be acquired and subsequently George Street's visual air quality has been investigated through images.

As for the second part of the investigation, that being secondary data and research, information has been collected from a range of newspaper articles including the Daily Telegraph and the Sydney Morning Herald. This is accompanied by further research through various journals and council websites, specifically from the New South Wales Government and their city-development pages like 'My Sydney'.

The collaboration of both primary and secondary data assists in an accurate investigation, where comparisons and conclusions can be made through weighing up evidence and sources. Such an approach has been extremely useful in identifying economic and social implications of light-rail construction on George Street, but has ultimately proved substandard in the environmental aspects of this investigation.

#### Description of investigation, with results obtained in graphs and tables:

The investigation encompassed both primary and secondary research to develop a deep understanding of the 'light-rail' project, and more importantly, it's numerous impacts on George Street.

Of all the research undertaken, individual surveys of the public at George Street proved to be the most effective.

The surveyed groups were; Civilians, Managers/Employees and Drivers.

The results of the surveys can be grouped into either; **Social**, **Economic** or **Environmental**

#### Civilians: (20)

Question	Yes	No	Additional comments (Common)
Are you required to take a detour to get to work or home?	8	12	Yes = Buses / No = Trains
Do you feel as if there is more pollution on George Street since the light-rail construction began?	20	0	Much more pollution, especially dust
Do you try and avoid the area under construction?	6	14	Yes = Work/Shop elsewhere No = Work/Shop nearby
Has the construction disrupted your daily city lifestyle?	20	0	Various reasons, general inconvenience
Would you say that the construction is overwhelmingly loud? Does this bother you?	20	0	Especially when the road is being ripped up
Do you feel safe around the construction area?	19	1	Yes = It is adequately closed off, No = Fears pollution
As a taxpayer, are you happy that 2.1 billion dollars is going into the project?	0	20	Should be going towards people in need; E.g. Hospitals
The project is estimated to be completed in 2020, would you have expected it to be sooner?	14	6	<i>No comments</i>

#### Managers/Employees: (15)

Question	Yes	No	Additional comments (Common)
Do you notice less foot-traffic passing your store?	15	0	Especially when there is dust
Since construction began, have you been serving less customers?	15	0	<i>No comments</i>
Do you feel as if the construction is limiting your sales?	15	0	People aren't browsing as much
Do you find it hard to work with the construction outside?	13	2	Yes = Too loud No = Used to it now
Would you say that more sales occurred before the construction began?	15	0	Yes, much more foot-traffic



## Drivers: (5)

Question	Yes	No	Additional comments (Common)
Has the construction caused you to take big detours?	1	4	Yes = Very unhappy with construction No = No, just adds more time
Does the construction make your job harder?	3	2	Yes = Adds time to the trip/causes delays No = Not big of a deal
Have you noticed less people using your service since construction began?	0	5	No = Commuters actually gather up at other bus stops which makes it much busier
Do you think that after the trams begin to operate, you might have less work?	5	0	Yes = Light-rail will definitely attract more customers, bus routes will be shortened as well



Contrary to business belief, this photograph demonstrates the immense foot-traffic on and around George Street, especially on the northern side near 'Apple'. Interestingly, the state-government has placed banners around the construction site titled 'Still the best place to shop'; which supports their claim that businesses aren't as effected as they believe and construction is not all that disruptive.



This photograph of the site was taken on a weekday, during construction. Evidently, there is perfect visibility much past Queen Victoria Building. It must be noted however that light-precipitation may have weighed down dust particles, inhibiting visual pollution from escaping into the atmosphere.

#### Conclusions based on results:

Civilian results indicate a general dissatisfaction with light-rail construction on George Street, specifically in terms of its inconvenient nature through noise and visual pollution. Surprisingly also, people have unanimously opposed the construction in terms of its expensive cost and slow progress. It is believed that light-rail should be completed before 2020 and the 2.1 billion dollars should be allocated towards other public services, e.g. hospitals.

Managers and employees argue that light-rail construction is detrimental to their businesses prosperity, which may or may not be the case, but judging solely on personal experiences; George Street is always thriving with consumers. Nevertheless, the unanimous perspective of business owners and managers should not be rejected, and therefore the concept that light-rail construction inhibits sales is more than likely.

As for drivers of taxi's and buses, although my hypothesis leads to the belief that light-rail construction has greatly affected their work and city-lifestyle, evidence suggests otherwise. Generally, drivers have adapted to the road closures and as a result do not find construction hugely inconvenient. It must be noted however, that drivers unanimously fear loss of job security once light-rail is operational.

Finally, in terms of environmental impacts caused by light-rail construction on George Street, pollution seems inevitable and detrimental to George Street and its citizens. Although material waste remains non-existent, community responses indicate that visual and noise pollution exist in great detail. This comes irrespective of my primary photography findings, which were likely flawed by overcast and precipitation.



Ultimately, light-rail construction is impacting George Street on various social, economic and environmental levels. The project is inconveniencing and disrupting the local area and city-lifestyle, therefore proving my hypothesis correct – albeit to a much lesser extent as was originally believed in terms of severity of the issue.

#### **Limitations of conclusions:**

In order to achieve a more accurate investigation, air quality measurements need to be undertaken to ensure environmental impacts are precisely accounted for. Additionally, these measurements need to be collected with data prior to the commencement on construction, as with photographic evidence.

Moreover, the impacts of light-rail construction on George Street’s local economy can only be deemed accurate if businesses provide sales reports and balance sheets; which are inaccessible to the general public. This way, statistical evidence can prove or disprove the effects and impacts caused by construction.

#### **Evaluation of conclusions and process of investigation – problems experienced**

The conclusions derived from the investigation, in essence, are similar to my original hypothesis; that is light-rail construction disrupts the city-lifestyle. The conclusions of severity are however to a much lesser extent than originally predicted. Overall, the conclusions demonstrate the impacts of light-rail construction on George Street and for the most part were expected.

There were many problems with the investigation, firstly being insufficient secondary sources which were extremely vague and undetailed. Secondly being the hardships encountered with surveying the public, individuals and especially employees do not wish to be surveyed – even though it is for educational purposes. Thirdly, online data and evidence of George Street prior to construction is surprisingly non-existent, this made it impossible to accurately compare the local area to its original status. Finally, physical testing of air quality could not be undertaken due to the inability to acquire such a device; this severely impeded environmental conclusions.

#### **Suggestions for follow-up research**

To obtain current financial records of businesses along with those after light-rail is operational, this will assist in determining impacts and potential economic benefits caused by light-rail. The same is required with physical testing of air quality, which will prove or disprove projected reductions in greenhouse gas emissions.

Ultimately, a similar and more detailed investigation would need to take place after light-rail is operational on George Street, which will enable thorough conclusions regarding the benefits of light-rail construction.

#### **Acknowledgments:**

- Peter Slater, for assistance and mentorship regarding this investigation.
- The City of Sydney, for allowing such an investigation to take place.
- NSW State Government, for initiating ‘*Tomorrow’s Sydney*’ project which enables light-rail.
- Apple Store, George Street Camera Shop, Factorie, Platypus, for surveys and photographs.
- The 40 anonymous individuals who were surveyed on George Street.

**References: Books, articles, websites, using correct referencing style (author, date, title of article, book, publisher, page numbers)**

#### Articles

Heather McNab, 13/1/16, *'Light rail construction delivers mixed results for George St retailers this Christmas'*, **The Daily Telegraph**

Jim O'Rourke, 14/11/13, *'It's costing \$1.6 billion, but new tram line will also cause chaos for cars and pedestrians in the city'*, **The Daily Telegraph**

Matt Whitby, 25/3/16, *'George Street retailers to capitalise on changing trends'*, **The Sydney Morning Herald**

Melanie Kembery, 2/10/15, *'Sydney's light rail construction: what you need to know about buses'*, **The Sydney Morning Herald**

Jessica Farrelly, 28/4/16, *'Sydney Light Rail boosts George Street land values'*, **Criterion Conferences**

Alan Davies, 14/1/15, *'Is Sydney's new light-rail line about saving the planet?'*, **Crikey (The Urbanist)**

James Robertson, 23/10/14, *'Work on eastern suburbs light rail begins along George Street'*, **The Sydney Morning Herald**

#### Reports

Transport for NSW & The Council of the City of Sydney, 19/12/13, *'Development agreement: Sydney Light Rail Project'*

#### Websites

Last updated: 6/7/16, <http://www.cityofsydney.nsw.gov.au/vision/city-transformation/light-rail>

Last updated: 18/7/16, <http://www.sydneylightrail.transport.nsw.gov.au/>

Last updated: 20/7/16, <http://mysydney.nsw.gov.au/cbd-projects>

#### Video/Advertisements

Transport for NSW, 13/6/16, <https://www.youtube.com/watch?v=V8Y2x7okz7w>, (Tomorrow's Sydney Ad)

**Appendices – fieldwork notes, rough notes, copies of questionnaires used for surveys**

## Senior Geography Project – Part A (15/15)

**State the topic of investigation for your research. (1 Mark)**

- The impacts of the light-rail construction on George Street.

**State 2-3 aims of the research investigation. (3 marks)**

- To determine the environmental impacts caused by the construction of light-rail on George-Street, through pollution and material waste.
- To find economic effects of the light-rail construction on surrounding businesses, taxpayers and the state government.
- To determine the disruption of the city lifestyle on workers, tourists and transport. Whether or not the construction is causing considerable nuisance.

**State 2-3 hypotheses of the research investigation.**

- The construction of light-rail on George-Street is greatly damaging the surrounding environment, through severely decreased air quality and visual pollution.
- The economy is being damaged by the construction of light-rail on George Street, businesses are losing sales and foot-traffic, taxpayers would rather have their taxes put towards other community services/improvements and the State government is losing large amounts of capital.
- The city lifestyle is being greatly disrupted by the construction of George Street's light-rail, as a result workers and tourists oppose the project. Pedestrians are generally choosing to take alternative routes (detours) around George-street. Taxi's and buses are greatly inconvenienced, making their drivers unhappy and in opposition to the construction.

**Describe the primary data to be used in the research. (3 marks)**

In regards to all impacts induced by the construction of light-rail on George street, observations will be used to gather information. These observations include; photographs of the subject area, physical testing of air quality, surveys and questionnaires of business owners, staff members, drivers and tourists, regarding the impacts of construction on city-lifestyle, environment and economy. All observations will then be additionally used to compare the construction area to; other parts of George Street, as well as the area prior construction. Effectively determining the consequences of George-street light-rail construction on multiple geographical and social aspects.

**5. Provide your questionnaire/survey questions as evidence of primary data attached to this plan (3 marks)**

**REFER TO PAGE 12**

**6. Describe the secondary data to be used in the research. (2 Marks)**

Secondary data to support my investigation will be collated from council websites, newspaper articles, published media/statistics/surveys. This data will assist comparing the construction area to its current and past state, economic impacts such as accurate loss of sales, larger scale environmental impacts through pollution, published community responses and reasons for oppositions towards construction.



## SURVEY

“Hello, do you have a moment to talk about the light-rail construction?”

I just have a few short questions for you, please answer them with a simple yes or no.”

(X 20 people)

Are you required to take a detour to get to work or home? **8 Yes (buses)/12 no (trains)**

Do you feel as if there is more pollution on George Street since the light-rail construction began? **20 yes (Much more pollution, dust especially)**

Do you try and avoid the area under construction? **6 yes, 14 no (either work there**

Has the construction disrupted your daily city lifestyle? **(20 yes)**

Would you say that the construction is overwhelmingly loud? Does this bother you? **(20 yes, 20 yes)**

Do you feel safe around the construction area? **19 yes (it is adequately closed off), 1 no (fears pollution)**

As a taxpayer, are you happy that 5 billion dollars is going into the project? **20 No (should be going towards people in need, hospitals etc)**

The project is estimated to be completed in 2020, would you have expected it to be sooner? **14 yes, 6 no**

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### Workers/Managers - 15

Do you notice less foot-traffic passing your store? **15 yes**

Since construction began, have you been serving less customers? **15 yes**

Do you feel as if the construction is limiting your sales? **15 yes**

Do you find it hard to work with the construction outside? **13 yes (too loud) , 2 no (used to it now)**

Would you say that more sales occurred before the construction began? **15 yes**

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### Drivers (interviewed on their breaks)

Has the construction caused you to take big detours? **1 yes (very unhappy with George street construction), 4 no**

Does the construction make your job harder? **3 yes (adds time to the trip/causes delays), 2 No (not big of a deal)**

Have you noticed less people using your service since construction began? **5 No, the opposite actually – commuters now gather up at other bus stops which makes it much busier**

Do you think that after the trams begin to operate, you might have less work? **5 yes, light-rail will definitely attract more customers, our routes will be impacted (shortened) as well**

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