Policies to find the cost of:

* Vaccines
  + Cost of Influenza Vaccine/dose (adult): averages to $12.30 (<https://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/index.html>)
  + Measles (adult): $42.12 (<https://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/index.html>)
  + Smallpox: $3/dose (<http://articles.latimes.com/2011/nov/13/nation/la-na-smallpox-20111113>)
  + Ebola: $135.90/person (<http://www.who.int/csr/resources/publications/ebola/GEVIT_guidance_AppendixK.pdf>)
  + More vaccination info about the level of vaccination simulted to be used in Sweden to minimize overall cost (<https://www.eurosurveillance.org/content/10.2807/ese.14.37.19333-en>)
* Closing schools (Purdue will use the same statistic because screw it)
  + In UK varied between 0.2 to 1.2 billion pounds/week total economic cost of closing schools due to parents needing to remain home with children (this would be for all schools to close in the UK) (<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0029640>)
  + NCBI estimates that a nationwide epidemic would result in an economic loss of $45 billion if all schools were closed for 4 weeks (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2762813/>) and there are 50.7 million students as of fall 2017 in public K-12 schools (<https://nces.ed.gov/fastfacts/display.asp?id=372>), which means that the cost per student of a school that closed per week is 45000 (mil) / 50.7 (mil) / 4 ( week) = $222/student/week of closure (this includes costs associated with people missing work)
* Quarantine: $160/person/day (<https://people.clas.ufl.edu/maia/files/Mubayi_Cost_based_Final.pdf>)
  + **Quarantine** is used to separate and restrict the movement of **well** persons who may have been exposed to a communicable disease to see if they become ill. These people may have been exposed to a disease and do not know it, or they may have the disease but do not show symptoms. Quarantine can also help limit the spread of communicable disease. (<https://www.hhs.gov/answers/public-health-and-safety/what-is-the-difference-between-isolation-and-quarantine/index.html>)
* Isolation: $1254/person/day
  + **Isolation** is used to separate **ill** persons who have a communicable disease from those who are healthy. Isolation restricts the movement of ill persons to help stop the spread of certain diseases. For example, hospitals use isolation for patients with infectious tuberculosis.
* Closing workplaces
  + GDP for West Lafayette/Lafayette in 2016 was $10,007 million (<https://www.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=10&isuri=1&7003=200&7035=-1&7004=naics&7005=-1&7006=29200&7036=-1&7001=2200&7002=2&7090=70&7007=-1&7093=levels>)
  + Number of workplaces simulated in model is 1001
  + So yearly GDP contribution on average per firm is $10,007 mil/1001 businesses = $9997003/business/year = $192,250/business/week
* Closing bus routes
  + Total revenue from passengers in fiscal year 2016 was $908,109 (<http://www.govwiki.info/pdfs/Special%20District/IN%20Greater%20Lafayette%20Public%20Transportation%20Corporation%202016.pdf>)
  + I need to query database to get how many people ride each different route to determine the loss in revenue for closing the route, and then potentially average those costs together for an overall cost of closing any given route for the sake of simplicity
  + In model, 48626 people use public transportation from 2880 households
  + That means that the value of each regular customer is approximately $18.68/person/year = $0.36/person/week (\*Note: this is not used in the calculations below since it does not account for people taking multiple bus routes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rt | Pp | % Traf | Share of Yearly Revenue ($) | Share of Weekly Rev |
| 10 | 13804 | 9.89 | 89819 | 1727 |
| 1A | 808 | 0.58 | 5257 | 101 |
| 1B | 14454 | 10.36 | 94048 | 1809 |
| 23 | 26101 | 18.70 | 169832 | 3266 |
| 2A | 704 | 0.50 | 4581 | 88 |
| 2B | 672 | 0.48 | 4373 | 84 |
| 3 | 1440 | 1.03 | 9370 | 180 |
| 4A | 849 | 0.61 | 5524 | 106 |
| 4B | 38459 | 27.56 | 250242 | 4812 |
| 5 | 14081 | 10.09 | 91621 | 1762 |
| 6A | 327 | 0.23 | 2128 | 41 |
| 6B | 1057 | 0.76 | 6878 | 132 |
| 7 | 739 | 0.53 | 4808 | 92 |
| 8 | 25130 | 18.01 | 163514 | 3145 |
| 9 | 940 | 0.67 | 6116 | 118 |
| Tot | 139565 | 1 | 908109 | 17464 |

* + The above table can be used as the cost to close each bus route, since it also factors in that people who regularly use public transportation will take all routes that go through their region.

Sources (these are more general sources that helped me figure out what to look for):

* <http://www.who.int/healthsystems/topics/health-law/chapter10.pdf>
* <https://www.cdc.gov/oid/docs/ID-Framework.pdf>
* <https://www.pugetsound.edu/student-life/counseling-health-and-wellness/health-topics/preventing-the-spread-of-infec/>
* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4808683/>
* <https://www.beckershospitalreview.com/quality/10-best-strategies-for-infection-prevention-and-control.html>
* <https://idph.iowa.gov/About/Goals-and-Strategies/Prevent-Epidemics>
* <http://rstb.royalsocietypublishing.org/content/367/1604/2893>