BAB 5
KESIMPULAN DAN SARAN

5.1 Kesimpulan

Dari hasil analisis maka dapat dinyatakan kesimpulan sebagai berikut:

1. Waktu perjalanan Trans Metro Pasundan Koridor 2 memiliki waktu perjanalan rata-rata selama 2 jam 9 menit. Berdasarkan persentase komponen waktu perjalanan ditemukan besar waktu berjalannya kendaraan (*running time*) adalah lebih besar dibandingkan komponen waktu henti. Berdasarkan diagram waktu henti terbanyak terjadi pada interval jarak 3-6 km dari Arah 1 yaitu ruas simpang jalan Tol Padalarang.

2. Hasil dari uji korelasi dinyatakan bahwa waktu henti dan waktu perjalanan memiliki hubungan yang signifikan Arah 1 maupun Arah 2. Waktu henti juga memiliki hubungan dengan *running time* pada Arah 1.

3. Hasil regresi menunjukkan waktu perjalanan dapat dipengaruhi oleh waktu henti sebesar 1,415 detik setiap pertambahan waktu henti sebesar 1 detik pada Arah 1. Pada Arah 2 waktu perjalanan dipengaruhi oleh waktu henti sebesar 1,388 detik setiap pertambahan waktu henti sebesar 1 detik. Maka dapat dinyatakan waktu henti berpengaruh signifikan terhadap waktu perjalanan.

4. Besar komponen waktu henti meliputi, *dwell time* pada Arah 1 memiliki rentang proporsi 4,14 - 5,63 % dan pada Arah 2 proporsi berada pada interval 2,28-3,40%. Besar waktu henti lain (WL) pada Arah 1 memiliki proporsi rata-rata 7,70-10,82% dan pada Arah 2 memiliki proporsi rata-rata 5,7-7,2%.

5.2 Saran

Untuk pengembangan studi lanjutan berikut ini merupakan saran yang dapat diberikan:

1. Diperlukan studi lanjutan terhadap komponen lain dalam waktu perjalanan dan *dwell time* seperti komponen percepatan dan perlambatan yang menjadi batasan dalam studi ini.

2. Dapat dilakukan studi lanjutan dengan menganalisis waktu perjalanan dan waktu henti selama satu siklus ataupun analisis terhadap keandalan waktu perjalanan bus.

DAFTAR PUSTAKA

Agu, Friday, I., & Francis, Runyi, E. (2018). Comparison of Goodness of Fit Tests for Normal Distribution. *Asian Journal of Probability and Statistics*, 1–32. https://doi.org/10.9734/ajpas/2018/v1i224507

Bargegol, I., Ghorbanzadeh, M., Ghasedi, M., & Rastbod, M. (2017). Evaluation of Effective Factors on Travel Time in Optimization of Bus Stops Placement Using Genetic Algorithm. *IOP Conference Series: Materials Science and Engineering*, *245*, 042002. https://doi.org/10.1088/1757-899X/245/4/042002

Büchel, B., & Corman, F. (2020). Review on Statistical Modeling of Travel Time Variability for Road-Based Public Transport. *Frontiers in Built Environment*, *6*, 70. https://doi.org/10.3389/fbuil.2020.00070

Büchel, B., & Corman, F. (2022). Modeling conditional dependencies for bus travel time estimation. *Physica A: Statistical Mechanics and Its Applications*, *592*, 126764. https://doi.org/10.1016/j.physa.2021.126764

Ceder, A. (2007). *Public transit planning and operation: Theory, modelling and practice* (1st ed). Butterworth-Heinemann.

Chen, Z., & Fan, W. D. (2020). Analyzing travel time distribution based on different travel time reliability patterns using probe vehicle data. *International Journal of Transportation Science and Technology*, *9*(1), 64–75. https://doi.org/10.1016/j.ijtst.2019.10.001

Comi, A., Zhuk, M., Kovalyshyn, V., & Hilevych, V. (2020). Investigating bus travel time and predictive models: A time series-based approach. *Transport Infrastructure and Systems in a Changing World. Towards a More*

Sustainable, Reliable and Smarter Mobility.TIS Roma 2019 Conference Proceedings, *45*, 692–699. https://doi.org/10.1016/j.trpro.2020.02.109

Dueker, K., Kimpel, T., Strathman, J., & Callas, S. (2004). Determinants of Bus Dwell Time. *Journal of Public Transportation*, *7*(1), 21–40. https://doi.org/10.5038/2375-0901.7.1.2

El-Geneidy, A., & Vijayakumar, N. (2011). The Effects of Articulated Buses on Dwell and Running Times. *Journal of Public Transportation*, *14*(3), 63–86. https://doi.org/10.5038/2375-0901.14.3.4

Emam, E. B., & Al-Deek, H. (1959). Using Real-Life Dual-Loop Detector Data to Develop New Methodology for Estimating Freeway Travel Time Reliability. *Transportation Research Record*.

Fatkhurrozi, M., Sudarsana, D. K., Yuniar, D., & Suraji, A. (n.d.). *Travel Time Behavior Study of Malang-Denpasar Intercity Bus Considering Sailing Time of Ketapang- Gilimanuk.*

Figliozzi, M. A., & Bigazzi, A. Y. (2012). *Value of Travel Time Reliability Part II: A Study of Tradeoffs Between Travel Reliability, Congestion Mitigation Strategies and Emissions.*

Gong, X., Guo, X., Dou, X., & Lu, L. (2015). Bus Travel Time Deviation Analysis Using Automatic Vehicle Location Data and Structural Equation Modeling. *Mathematical Problems in Engineering*, *2015*, 1–9. https://doi.org/10.1155/2015/410234

Hadi, W. (2008). *STUDI DELAY TIME DAN TIME HEADWAY BUS TRANJAKARTA KORIDOR IV.*

Harsha, M. M., Mulangi, R. H., & Kumar, H. D. D. (2020). Analysis of Bus Travel Time Variability using Automatic Vehicle Location Data. *Recent Advances and Emerging Issues in Transport Research – An Editorial Note for the Selected Proceedings of WCTR 2019 Mumbai*, *48*, 3283–3298. https://doi.org/10.1016/j.trpro.2020.08.123

Hassan, M. N., & Hawas, Y. E. (2017). A methodology for rearranging transit stops for enhancing transit users generalized travel time. *Special Issue: Driver Behavior, Highway Capacity and Transportation Resilience*, *4*(1), 14–30. https://doi.org/10.1016/j.jtte.2016.09.012

Jäntschi, L., & Bolboacă, S. D. (2018). Computation of Probability Associated with Anderson–Darling Statistic. *Mathematics*, *6*(6), 88. https://doi.org/10.3390/math6060088

Kaewunruen, S., Sresakoolchai, J., & Sun, H. (2021). Causal analysis of bus travel time reliability in Birmingham, UK. *Results in Engineering*, *12*, 100280. https://doi.org/10.1016/j.rineng.2021.100280

Kieu, M., Bhaskar, A., & Chung, E. (2014). Public Transport Travel-Time Variability Definitions and Monitoring. *Journal of Transportation Engineering*. https://doi.org/10.1061/(ASCE)TE.1943-5436.0000724

Kurniawan, R. (2016). *Analisis regresi*. Prenada Media.

Kutlimuratov, K., & Mukhitdinov, A. (2020). Impact of stops for bus delays on routes. *IOP Conference Series: Earth and Environmental Science*, *614*(1), 012084. https://doi.org/10.1088/1755-1315/614/1/012084

Lakatos, A., & Mándoki, P. (2020). Analytical, Logit Model-based Examination of the Hungarian Regional Parallel Public Transport System. *Promet -*

Traffic&Transportation, *32*, 361–369. https://doi.org/10.7307/ptt.v32i3.3307

Levinson, H. S. (1983). *Analyzing transit travel time performance* (Issue 915).

Low, V. J. M., Khoo, H. L., & Khoo, W. C. (2022). Quantifying bus travel time variability and identifying spatial and temporal factors using Burr distribution model. *International Journal of Transportation Science and Technology*, *11*(3), 563–577. https://doi.org/10.1016/j.ijtst.2021.07.004

Maydeu-Olivares, A., & Forero, C. (2010). Goodness-of-Fit Testing. In *International Encyclopedia of Education* (Vol. 7, pp. 190–196). https://doi.org/10.1016/B978-0-08-044894-7.01333-6

Moosavi, S. M. H., Ismail, A., & Yuen, C. W. (2020). Using simulation model as a tool for analyzing bus service reliability and implementing improvement strategies. *PLOS ONE*, *15*(5), e0232799. https://doi.org/10.1371/journal.pone.0232799

National Research Council (U.S.) (Ed.). (2000). *Highway capacity manual*. Transportation Research Board, National Research Council.

Roess, R. P. (2004). *Traffic engineering / Roger P. Roess, Elena S. Prassas, William R. McShane*.

Romadhona, P., & Hapsari, A. (2020). The planning of campus bus in Islamic University of Indonesia with geographic system information. *IOP Conference Series: Materials Science and Engineering*, *771*, 012052. https://doi.org/10.1088/1757-899X/771/1/012052

Shimokawa, T. & Min Liao. (1999). Goodness-of-fit tests for type-I extreme-value and 2-parameter Weibull distributions. *IEEE Transactions on Reliability*, *48*(1), 79–86. https://doi.org/10.1109/24.765931

Simeunović, M., Bogdanović, V., Simeunović, M., Pitka, P., Papić, Z., & Drašković, D. (2021). The Model of the Optimal Number of Public Transport Vehicles in Mixed Traffic Flow Conditions: A Case Study. *Discrete Dynamics in Nature and Society*, *2021*, 1–19. https://doi.org/10.1155/2021/5276323

Subandriyo, B., St, S., & Stat, M. (n.d.). *ANALISIS KOLERASI DAN REGRESI*.

Tétreault, P. R., & El-Geneidy, A. M. (2010). Estimating bus run times for new limited-stop service using archived AVL and APC data. *Transportation Research Part A: Policy and Practice*, *44*(6), 390–402. https://doi.org/10.1016/j.tra.2010.03.009

Travel Time Data Collection. (2008). [Technical Report]. Midwestern Consulting, LLC. https://semcog.org/desktopmodules/SEMCOG.Publications/GetFile.ashx?filename=SEMCOGTravelTimeDataCollectionNovember2008.pdf

Turner, S. M., Eisele, W. L., Benz, R. J., & Holdener, D. J. (1998). *Travel time data collection handbook* (dot:4491). *FHWA-PL-98-035*. https://doi.org/10.21949/1404545

Uyanık, G. K., & Güler, N. (2013). A Study on Multiple Linear Regression Analysis. *4th International Conference on New Horizons in Education*, *106*, 234–240. https://doi.org/10.1016/j.sbspro.2013.12.027

Vuchic, V. R. (2007). *Urban transit systems and technology*. John Wiley & Sons.

Yetiskul, E., & Senbil, M. (2012). Public bus transit travel-time variability in Ankara (Turkey). *Transport Policy*, *23*, 50–59. https://doi.org/10.1016/j.tranpol.2012.05.008

Yohanes Satrio Wicaksono & Muslim Efendi Harahap. (2019). Analysis of Travel Time and Bus Utilization of Corridor 1 Trans Jakarta to Realize the Smart Mobility Concept. *Proceedings of the 12th International Conference on Business and Management Research (ICBMR 2018)*, 345–352. https://doi.org/10.2991/icbmr-18.2019.56

Zahedi Zahedi & Fredy Wijaya. (2011). Stochastic Bus Dispatching Model untuk Optimalisasi Jumlah Bus Transjakarta Koridor 3. *ComTech*, *2*(2), 1118–1128.

Zhang, H., Liang, S., Zhao, J., He, S., & Zhao, T. (2020). Coordinated Headway-Based Control Method to Improve Public Transit Reliability considering Control Points Layout. *Journal of Advanced Transportation*, *2020*, 1–16. https://doi.org/10.1155/2020/3236841